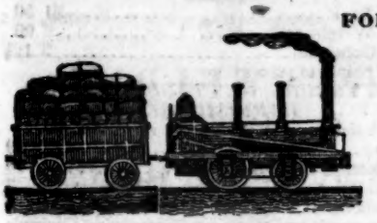
AMERICAN RAILROAD JOURNAL,

AND GENERAL ADVERTISER

FOR RAILROADS, CANALS, STEAMBOATS, MACHINERY AND MINES.



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AMERICAN RAILROAD JOURNAL.
OFFICE AT THE FRANKLIN HOUSE,
105 Chestnut Street,
PHILADELPHIA, PA.

This is the only periodical having a general circulation throughout the Union, in which all matters connected with public works can be brought to the notice of all persons in any way interested in these undertakings. Hence it offers peculiar advantages for advertising times of departure, rates of fare and freight, improvements in machinery, materials, as iron, timber, stone, cement, etc. It is also the best medium for advertising contracts, and placing the merits of new undertakings fairly before the public.

TERMS.—Five Dollars a year, *in advance.*

RATES OF ADVERTISING.

One page per annum	$125 00
One column "	50 00
One square "	15 00
One page per month	20 00
One column "	8 00
One square "	2 50
One page, single insertion	8 00
One columnn " "	3 00
One square " "	1 00
Professional notices per annum	5 00

BOSTON AND PROVIDENCE RAILroad. Passenger Notice. Summer Arrangement. On and after Monday, Sept. 28, 1846, the Passenger Trains will run as follows:

For New York—Night Line, via Stonington. Leaves Boston every day, but Sunday, at 5 p.m.

Accommodation Trains, leave Boston at 7½ a.m. and 3½ p.m., and Providence at 8 a.m. and 3½ p.m.

Dedham trains, leave Boston at 9 a.m.; 3 p.m., 5½ p.m., and 10½ p.m. Leave Dedham at 8 a.m. and 4½ and 9 p.m.

Stoughton trains, leave Boston at 11½ a.m. and 4·10 p.m. Leave Stoughton at 8 a.m. and 2½ p.m.

All baggage at the risk of the owners thereof.

31 1y W. RAYMOND LEE, *Sup't.*

BRANCH RAILROAD and STAGES CONnecting with the Boston and Providence Railroad.

Stages connect with the Accommodation trains at the Foxboro' Station, to and from Woonsocket. At the Seekonk Station, to and from Lonsdale, R. I. via Pawtucket. At the Sharon Station, to and from Walpole, Mass. And at Dedham Village Station, to and from Medford, via Medway, Mass. At Providence, to and from Bristol, via Warren, R. I.—Taunton, New Bedford and Fall River cars run in connection with the accommodation trains.

BOSTON AND MAINE RAILROAD. Upper Route, Boston to Portland via, Reading, Andover, Haverhill, Exeter, Dover, Great Falls, South & North Berwick, Wells, Kennebunk and Saco.

Winter Arrangement, 1846-7.

On and after October 5th, 1846, Passenger Trains will leave daily, (Sundays excepted,) as follows:

Boston for Portland at 7½ a.m. and 2½ p.m.

Boston for Great Falls at 7½ a.m., 2½ and 3·25 p.m.

Boston for Haverhill at 7½ and 11½ a.m., 2½, 3·25 and 5 p.m.

Boston for Reading at 7½, and 11½ a.m., 2½, 3·25 5 and 6½ p.m.

Portland for Boston at 7½ a.m., and 3 p.m.

Great Falls for Boston at 6½ and 9½ a.m., and 4½ p.m.

Haverhill for Boston at 7½, 8½, and 11 a.m. and 3 and 6½ p.m.

Reading for Boston at 7, 8½ and 9½ a.m., 12 m., 1½, 4 and 7½ p.m.

The Depot in Boston is on Haymarket Square.

Passengers are not allowed to carry Baggage above $50 in value, and that *personal* Baggage, unless notice is given, and an extra amount paid, at the rate of the price of a Ticket for every $500 additional value.

1y31 CHAS. MINOT, *Super't.*

THE BEST RAILROAD ROUTE TO THE Lake and Buffalo, from Cincinnati. Take Cars to Xenia, 65 miles; take Stage to Mansfield, 88 miles; thence by Cars to Sandusky, 56 miles to the Lake; thence Steamboat to Buffalo, 230 miles.

Fare from Cincinnati to Sandusky	$8 00
" " Sandusky to Buffalo, Cabin	6 00
" " " " " Steerage	4 50

Fare by this route, although the cheapest across the state, will be reduced in a short time, railroad lengthened, and speed increased.

Leave Cincinnati in the morning, arrive at Columbus at night.

Leave Columbus in the morning, arrive at Sandusky same day.

Leave Sandusky, by Boat, in the morning, arrive at Buffalo next morning in time for the Cars north and east for Niagara Falls, Canada, Saratoga Springs, Troy, Albany, Boston, New York, Washington, or Philadelphia.

Passengers should not omit to pay their fare through from Cincinnati to Sandusky, or from Columbus to Sandusky via Mansfield; as this route is the only one that secures 56 miles [this road is run over in 2h. 50m.,] most railroad which is new, and is the shortest, cheapest and most expeditious across the state.

Fares on the New York railroads are about to be reduced. B. HIGGINS, *Sup't, etc.*

Sandusky, Ohio. *M. & S. C. R. R. Co.*

SUMMER ARRANGEMENT.—NEW YORK AND ERIE RAILROAD LINE, from April 1st until further notice, will run daily (Sundays excepted) between the city of New York and Middletown, Goshen, and intermediate places, as follows:

FOR PASSENGERS—
Leave New York at 7 A.M. and 4 P.M.
" Middletown at 6½ A.M. and 5½ P.M.

FARE REDUCED to $1 25 to Middletown—way in proportion. Breakfast, supper and berths can be had on the steamboat.

FOR FREIGHT—
Leave New York at 5 P.M.
" Middletown at 12 M.

The names of the consignee and of the station where to be left, must be distinctly marked upon each article shipped. Freight not received after 5 P.M. in New York.

Apply to J. F. Clarkson, agent, at office corner of Duane and West sts. H. C. SEYMOUR, Sup't.

March 25th, 1846.

Stages run daily from Middletown, on the arrival of the afternoon train, to Milford, Carbondale, Honesdale, Montrose, Towanda, Owego, and West; also to Monticello, Windsor, Binghamton, Ithaca, etc., etc. Agent on board. 13tf

NORWICH AND WORCESTER RAILRoad. Summer Arrangement, commencing Monday, April 6, 1846.

Accommodation Trains, daily, except Sunday. Leave Norwich, at 6 a.m., and 4½ p.m. Leave Worcester, at 10 a.m., and 4½ p.m.

☞ The morning Accommodation Trains from Norwich, and from Worcester, connect with the trains of the Boston, and Worcester and Western railroads each way.

The Evening Accommodation Train from Worcester connects with the 1½ p.m. train from Boston.

New York Train via Long Island Railroad:

Leave Allyn's Point for Boston, about 1 p.m., daily, except Sunday.

Leave Worcester for New York, about 10 a.m., stopping at Webster, Danielsonville, and Norwich.

New York Train via Steamboat—Leave Norwich for Boston, every morning, except Monday, on the arrival of the stamboat from New York, stopping at Norwich and Danielsonville.

Leave Worcester for New York, upon the arrival of the train from Boston, at about 4½ p.m., daily, except Sunday, stopping at Webster, Danielsonville and Norwich.

Freight Trains daily each way, except Sunday.—Special contracts will be made for cargoes, or large quanties of freight, on application to the superintendent.

☞ *Fares are Less when paid for Tickets than when paid in the Cars.* ☜

32 1y J W. STOWELL, Sup't.

TROY RAILROADS.—IMPORTANT NOTICE.—Troy and Greenbush Railroad, forming a continuous track from Boston to Buffalo and Saratoga Springs.

This road is new, and laid with the heaviest iron H rail. Trains will always be run on this road connecting at Greenbush each way with the trains to and from *Boston* and intermediate places, leaving Greenbush daily at 1½ p.m. and 6 p.m., or on arrival of the trains from Boston; leave Troy at 7½ a.m. and 4½ p.m., or to connect with trains to *Boston*.

Trains also run hourly on this road between Troy and Albany. Running time between Greenbush and Troy, 15 minutes.

TROY AND SCHENECTADY RAILROAD.

This road is laid its entire length with the heaviest H rail- which is not the fact with the road from Albany. Trains will always be run on this road connecting each way, to and from Buffalo and intermediate places. Leave Troy for Buffalo at 7½ a.m. and 1 p.m. and 6½ p.m., or to connect with the trains for the west; leave Schenectady at 2½ a.m., 8½ a.m., 1 p.m. and 3½ p.m., or on arrival of the trains from Buffalo and intermediate places.

TROY AND SARATOGA RAILROAD.

THE ONLY DIRECT ROUTE.

No change of passenger, baggage or other cars on this route. Cars leave Troy for Ballston, Saratoga Springs, Lake George and White Hall at 7½ a.m., (arriving one hour in advance of the train from Albany,) and at 3½ p.m. Returning, leave Saratoga at 9 a.m. and 3½ p.m., (reaching Troy in time for the evening boats to New York.) Cars also leave Troy for the Burrough at 3½ p.m. and 7 p.m., connecting with packet boats for the north. This takes passengers from New York and Boston to Montreal in 44 hours.

N.B. Travellers will find the routes through Troy most convenient and economical, and as expeditious as any other. The steamboats to and from New York land within a few steps of the railroad office, and passengers are taken up and landed by the different railroad lines at the doors of principal hotels, thus saving all necessity for, and annoyance from, hack drivers, cabmen, runners, etc.

Aug 3, 1846. 1y 32

BALTIMORE AND OHIO RAILROAD. MAIN STEM. The Train carrying the Great Western Mail leaves Baltimore every morning at 7½ and

Cumberland at 8 o'clock, passing Ellicott's Mills, Frederick, Harpers Ferry, Martinsburgh and Hancock, connecting daily each way with—the Washington Trains at the Relay House seven miles from Baltimore, with the Winchester Trains at Harpers Ferry — with the various railroad and steamboat lines between Baltimore and Philadelphia and with the lines of Post Coaches between Cumberland and Wheeling and the fine Steamboats on the Monongahela Slack Water between Brownsville and Pittsburgh. Time of arrival at both Cumberland and Baltimore 5½ P. M. Fare between those points $7, and 4 cents per mile for less distances. Fare through to Wheeling $11 and time about 36 hours, to Pittsburgh $10, and time about 32 hours Through tickets from Philadelphia to Wheeling $13, to Pittsburgh $12. Extra train daily except Sundays from Baltimore to Frederick at 4 P. M., and from Frederick to Baltimore at 8 A. M.

WASHINGTON BRANCH.

Daily trains at 9 A. M. and 5 P. M. and 12 at night from Baltimore and at 6 A. M. and 5½ P. M from Washington, connecting daily with the lines North, South and West, at Baltimore, Washington and the Relay house. Fare $1 60 through between Baltimore and Washington, in either direction, 4 cents per mile for intermediate distances. s13y1

THE SUBSCRIBER IS PREPARED TO execute at the Trenton Iron Works, orders for Railroad Iron of any required pattern, and warranted equal in every respect in point of quality to the best American or imported Rails. Also on hand and made to order, Bar Iron, Braziers' and Wire Rods, etc., etc.

PETER COOPER 17 Burling Slip.

1y10 New York.

NEW RAILROAD ROUTE FROM BUFFALO to Cincinnati.

Passengers destined for Columbus and Cincinnati, O., Louisville, Ky., St. Louis, Mo., Memphis, Tenn., Vicksburg, Natches, New Orleans, and all intermediate ports, will find a new, and the most expeditious and comfortable Route, by taking Steamboats at Buffalo, landing at Sandusky City, Ohio, distance.....230 miles.

From thence by Cars, over the Mansfield Railroad which is new and just opened [laid with heavy Iron,] to Mansfield, distance..... 56 "

Thence by Stage via Columbus to Xenia over gravel and Macadamized Road, (the best in the state,) in new coaches, distance..... 88 "

Thence, over the Little Miami Railroad, from Xenia to Cincinnati, distance.... 65 "

TIME.

From Buffalo to Sandusky..... 24 hours.
Leave Sandusky 5 a.m. to Columbus.... 14 "
From Columbus to Cincinnati..... 15 "

Or say 30 hours from Sandusky to Cincinnati over this route, including delays.

FARE.

From Buffalo to Sandusky, Cabin.....$6 00
" " " " Steerage..... 3 00
" Sandusky to Columbus..... 4 50
" " *through* to Cincinnati..... 8 00

Passengers should not omit to pay their fare *through* from Sandusky City to Cincinnati and take receipts availing themselves of the benefit of a contract existing between the said Railroad and Stage Co's, securing 121 miles travel by good Railroad and 88 miles by Stage, in crossing from Lake Erie to the Ohio river, in the space of 30 hours.

Passengers destined for St. Louis, or any point below on the Mississippi, will save by taking this route, from 4 to 6 days time and travel, and nearly half the expense, over the Chicago and Peoria route to the above places.

Fare by this route, although the cheapest, will in a short time be reduced, Railroad lengthened, and speed increased.

B. HIGGINSON, *Sup't, etc.*
M. & S. C. R. R. Co.
Sandusky City, Ohio.

NEW YORK & HARLEM RAILROAD CO.—Winter Arrangement.

On and after Monday, November 23, 1846, the cars will run as follows:

Leave 27th street for 42d street, Deaf and Dumb Institute, Yorkville, Harlem Morrianna, and Williams' Bridge, at 7 o'clock a.m. From City Hall for above named places, 2 p.m. [freight train,] 2 30 p.m. 5 p.m. to Morrisiania only.

Leave City Hall for Harlem, Morrisiania, Fordham and Williams' Bridge, at 7 45 a.m., and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], 2 30 p.m. and 3 45 p.m.

Leave City Hall for Hunt's Bridge, Bronx, Tuckahoe, Hart's Corners White Plains, Davis' Brook, Unionville and Pleasantville, [Pleasantville 4 miles from Sing Sing,] 7 45 and 10 45 a.m.; 1 15 p.m., 2 p.m. [freight train], and 3 45 p.m.

RETURNING.

Leave Pleasantville, at 8, 10, [freight train], and 11, a.m.; 1 30, and 4, p.m.

Leave White Plains, at 8 12, 10 30, [freight train] and 11 20 a.m.; 1 50, and 4 20, p.m.

Leave Tuckahoe, 8 35, 10 55, [freight train,] and 11 35, a.m.; 2 05, and 4 35, p.m.

Leave Williams' Bridge at 7 45, 8 50 and 11 50 a.m.; 2 20, 4, and 4 50 p.m.

Leave Morrisiania 8 and 9 05 a.m.; 12 05, 2 35, 4 20, 5 05 and 6 p.m.

Leave Yorkville, at 8 12 a.m.; 4 35 and 6 15 p.m.

SUNDAY ARRANGEMENTS.

Leave City Hall for Pleasantville and intermediate places, at 7 45 a.m.; 1 15 and 3 p.m.

Leave Pleasantville for City Hall, at 8 a.m.; 11, and 3 15 p.m.

Leave City Hall for Williams' Bridge and intermediate places, 10 45 a.m.; 2 30 p.m.

Leave Williams' Bridge for City Hall, at 8 50 and 11 50 a.m.; 1, 3 45 and 4 05 p.m. 1y49

BALTIMORE AND SUSQUEHANNA Railroad.—Reduction of Fare. Morning and Afternoon Trains between Baltimore and York.—The Passenger

trains run daily, except Sunday, as follows:

Leaves Baltimore at.....9 a.m. and 3½ p.m.
Arrives at.....9 a.m. and 6½ p.m.
Leaves York at.....5 a.m. and 3 p.m.
Arrives at.....12½ p.m. and 8 p.m.
Leaves York for Columbia at..1½ p.m. and 8 a.m.
Leaves Columbia for York at..8 a.m. and 2 p.m.

FARE.

Fare to York.....$1 50
" Wrightsville..... 2 00
" Columbia..... 2 12½

Way points in proportion.

PITTSBURG, GETTYSBURG AND HARRISBURG.

Through tickets to Pittsburg via stage to Harrisburg.....$9
Or via Lancaster by railroad..... 10
Through tickets to Harrisburg or Gettysburg.. 3

In connection with the afternoon train at 3½ o'clock, a horse car is run to Green Spring and Owing's Mill, arriving at the Mills at.....5½ p.m.
Returning, leaves Owing's Mills at.....7 a.m.

D. C. H. BORDLEY, *Sup't.*
31 1y Ticket Office, 63 North st.

LEXINGTON AND OHIO RAILROAD. Trains leave Lexington for Frankfort daily, at 5 o'clock a.m., and 2 p.m.

Trains leave Frankfort for Lexington daily, at 8 o'clock a.m. and 2 p.m. Distance, 28 miles. Fare $1·25.

On Sunday but one train, 5 o'clock a m. from Lexington, and 2 o'clock p.m. from Frankfort.

The winter arrangement (after 15th September to 15th March) is 6 o'clock a.m. from Lexington, and ma. 9. from Frankfort, other hours as above.

351y

SOUTH CAROLINA RAILROAD.—A Passenger Train runs daily from Charleston, on the arrival of the boats from Wilmington, N. C., in connection

with trains on the Georgia, and Western and Atlantic Railroads—and by stage lines and steamers connects with the Montgomery and West Point, and the Tuscumbia Railroad in N. Alabama.

Fare through from Charleston to Montgomery daily.....$26 50
Fare through from Charleston to Huntsville, Decatur and Tuscumbia..... 22 00

The South Carolina Railroad Co. engage to receive merchandize consigned to their order, and to forward the same to any point on their road; and to the different stations on the Georgia and Western and Atlantic railroad; and to Montgomery, Ala., by the West Point and Montgomery Railroad.

1y25 JOHN KING, Jr, *Agent.*

CENTRAL RAILROAD—FROM SAVANNAH to Macon. Distance 190 miles.

This Road is open for the transportation of Passengers and

Freight. Rates of Passage, $8 00. Freight—

On weight goods generally... 50 cts. per hundred.
On measurement goods..... 13 cts. per cubic ft.
On brls. wet (except molasses and oil).....$1 50 per barrel.
On brls. dry (except lime)... 80 cts. per barrel.
On iron in pigs or bars, castings for mills, and unboxed machinery..... 40 cts. per hundred.
On hhds. and pipes of liquor, not over 120 gallons.....$5 00 per hhd.
On molasses and oil.....$6 00 per hhd.

Goods addressed to F. WINTER, Agent, forwarded free of commission. THOMAS PURSE,
y40 Gen'l. Sup't. Transportation.

MANUFACTURE OF PATENT WIRE Rope and Cables for Inclined Planes, Standing Ship Rigging, Mines, Cranes, Tillers etc., by JOHN A. ROEBLING, *Civil Engineer*, Pittsburgh, Pa.

These Ropes are in successful operation on the planes of the Portage Railroad in Pennsylvania, on the Public Slips, on Ferries and in Mines. The first rope put upon Plane No. 3, Portage Railrord, has now run 4 seasons, and is still in good condition. 2v19 1y

CENTRAL AND MACON AND WESTERN Railroads, Ga.—These Roads with the Western and Atlantic Railroad of the State of Georgia, form a continuous line from Savannah to Oothcaloga, Ga., of 371 miles, viz:

	Miles.
Savannah to Macon—Central Railroad	190
Macon to Atlanta—Macon and Western	101
Atlanta to Oothcaloga—Western and Atlaniic	80

Goods will be carried from Savannah to Atlanta and Oothcaloga, at the following rates, viz:

	To Atlanta.	To Oothcaloga.
On Weight Goods—Sugar, Coffee, Liquor, Bagging, Rope, Butter, Cheese, Tobacco, Leather, Hides, Cotton Yarns, Copper, Tin, Bar & Sheet Iron, Hollow Ware & Castings	$0 50	$0 75
Flour, Rice, Bacon in Casks or boxes, Pork, Beef, Fish, Lard, Tallow, Beeswax, Mill Gearing, Pig Iron and Grind Stones	0 50	0 62½
On Measurement Goods—Boxes of Hats, Bonnets and Furniture, per cubic foot	0 20	0 26
Boxes and Bales of Dry Goods, Saddlery, Glass, Paints, Drugs and Confectionary, per cubic foot	0 20 pr. 100 lbs.	35
Crockery, per cubic foot	0 15 " "	35
Molasses and Oil, per hhd., (smaller casks in proportion).	9 00	12 50
Ploughs, (large,) Cultivators, Corn Shellers, and Straw Cutters, each	1 25	1 50
Ploughs, (small,) and Wheelbarrows	0 80	1 05
Salt, per Liverpool Sack	0 70	0 95

Passage—Savannah to Atlanta, $10; Children, under 12 years of age, half price, Savannah to Macon, $7.

☞ Goods consigned to the subscriber will be forwarded free of Commissions.

☞ Freight may be paid at Savannah, Atlanta or Oothcaloga.

F. WINTER, *Forwarding Agent, C. R. R.*
Savannah, Aug. 15th, 1846. 1y34

GREAT SOUTHERN MAIL LINE! VIA Washington city, Richmond, Petersburg, Weldon and Charleston, S. C., direct to New Orleans. The only Line which carries the Great Southern Mail, and Twenty-four Hours in advance of Bay Line, leaving Baltimore same day.

Passengers leaving New York at 4½ P.M., Philadelphia at 10 P.M., and Baltimore at 6½ A.M., proceed without delay at any point, by this line, reaching Richmond in *eleven*, Petersburg in *thirteen and a half hours*, and Charleston, S. C., in *two days* from Baltimore.

Fare from Baltimore to Charleston.....$21 00
" " " Richmond..... 6 60

For Tickets, or further information, apply at the *Southern Ticket Office*, adjoining the *Washington Railroad Office*, Pratt street, Baltimore, to
1y14 STOCTON & FALLS, Agents.

RAILROAD SCALES.—THE ATTENTION of Railroad Companies is particularly requested to Ellicotts' Scales, made for weighing loaded cars in trains, or singly, they have been the inventors, and the first to make platform scales in the United States; supposing that an experience of 20 years has given a knowledge and superior advantage in the business.

The levers of our scales are made of wrought iron, all the bearers and fulcrums are made of the best cast steel, laid on blocks of granite, extending across the pit, the upper part of the scale only being made of wood. E. Ellicott has made the largest Railroad Scale in the world, its extreme length was one hundred and twenty feet, capable of weighing ten loaded cars at a single draft. It was put on the Mine Hill and Schuylkill Haven Railroad.

We are prepared to make scales of any size to weigh from five pounds to two hundred tons.

ELLICOTT & ABBOTT.
Factory, 9th street, near Coates, cor. Melon st.
Office, No. 3 North 5th street,
1y25 Philadelphia, Pa.

GEORGIA RAILROAD. FROM AUGUSTA to ATLANTA—171 MILES. AND WESTERN AND ATLANTIC RAILROAD FROM ATLANTA TO OOTHCALOGA, 80 MILES.

This Road in connection with the South Carolina Railroad and Western and Atlantic Railroad now forms a continuous line, 388 miles in length, from Charleston to Oothcaloga on the Oostenaula River, in Cass Co., Georgia.

RATES OF FREIGHT.		Between Augusta and Oothcaloga. 250 miles.	Between Charleston and Oothcaloga. 386 miles.
1st class.	Boxes of Hats, Bonnets, and Furnature, per cubic foot	$0 16	$0 25
2d class.	Boxes and Bales of Dry Goods, Sadlery, Glass, Paints, Drugs and Confectionary, per 100 lbs.	0 90	1 40
3d class.	Sugar, Coffee, Liquor, Bagging, Rope, Cotton Yarns, Tobacco, Leather, Hides, Copper, Tin, Bar and Sheet Iron, Hollow Ware, Castings, Crockery, etc.	0 55	0 75
4th class.	Flour, Rice, Bacon, Pork, Beef, Fish, Lard, Tallow, Beeswax, Feathers, Ginseng, Mill Gearing, Pig Iron, and Grindstones, etc	0 37½	0 62½
	Cotton, per 100 lbs	0 45	0 65
	Molasses, per hogshead	8 50	13 50
	" " barrel	2 00	3 25
	Salt per bushel	0 17	
	Salt per Liverpool sack		95
	Ploughs, Corn Shellers, Cultivators, Straw Cutters, Wheelbarrows	0 75	1 37

German or other emigrants, in lots of 20 or more, will be carried over the above roads at 2 cents per mile.

Goods consigned to S. C. Railroad Co. will be forwarded free of commissions. Freight may be paid at Augusta, Atlanta, or Oothcaloga.

J. EDGAR THOMSON,
Ch. Eng. and Gen. Agent.
Augusta, Sept. 2d, 1846. *44 1y

THE WESTERN AND ATLANTIC Railroad.—This Road is now in operation to Oothcaloga, a distance of 80 miles, and connects daily (Sundays excepted) with the Georgia Railroad.

From Kingston, on this road, there is a tri-weekly line of stages, which leave on the arrival of the cars on Tuesday, Thursday and Saturday, for Warrenton, Huntsville, Decatur and Tuscumbia, Alabama, and Memphis, Tennessee.

On the same days, the stages leave Oothcaloga for Chattanooga, Jasper, Murfreesborough, Knoxville and Nashville, Tennessee.

This is the most expeditious route from the east to any of these places.

CHAS. F. M. GARNETT,
Chief Engineer.
Atlanta, Georgia, April 16th, 1846. 1y1

TO RAILROAD COMPANIES AND MANUFACTURERS of railroad Machinery. The subscribers have for sale Am. and English bar iron, of all sizes; English blister, cast, shear and spring steel; Juniata rods; car axles, made of double refined iron; sheet and boiler iron, cut to pattern; tiers for locomotive engines, and other railroad carriage wheels, made from common and double refined B. O. iron; the latter a very superior article. The tires are made by Messrs. Baldwin & Whitney, locomotive engine manufacturers of this city. Orders addressed to them, or to us, will be promptly executed.

When the exact diameter of the wheel is stated in the order, a fit to those wheels is guaranteed, saving to the purchaser the expense of turning them out inside. THOMAS & EDMUND GEORGE,
a45 E. cor. 12th and Market sts., Philad., Pa.

LITTLE MIAMI RAILROAD.—OPEN TO SPRINGFIELD—Distance 84 miles—connecting at Xinia and Springfield with Messrs. Neil, Moore, & Co's. daily daylight lines of stages going east and north, to Columbus, Zanesville, Wheeling, Cleveland, and Sandusky City, via Urbana, Bellefontaine, Kenton, and the Mad river and lake Erie railroad, or Columdus, Delaware, and the Mansfield and Sundusky City railroad—forming, by these connections, the cheapest and most expeditious route to Buffalo, Niagara Falls, Rochester, Albany, New York, and Boston.

On and after Thursday, August 13, 1846, until further notice, a Passenger train will run as fllows:

Leave Cincinnati daily at 9 A. M., for Milford, Foster's Crossing, Deerfield, Morrow, Fort Ancient, Freeport, Waynesville, Spring Valley, Xenia, Old Town, Yellow Springs, and Springfield.

Returning, will leave Springfield at 4 hours 35 minutes A. M. A line of Hacks runs in connection with the Cars, between Deerfield and Lebanon.

FARE—From Cincinnati to Lebanon....$1 00
" " " Xenia..... 1 50
" " " Springfield.. 2 00
" " " Columbus... 4 00
" " " Sundusky city 8 00

The Passenger trains runs in connection with Strader & Gorman's line of Mail Packets to Louisville.

Tickets can be procured at the Broadway Hotel, Dennison House, or at the Depot of the Company, on East Front street.

Further information and through tickets for the Stage lines, may be procured at P. Campbell, Agent on Front street, near Broadway.

The company will not be responsible for baggage beyond 50 dollars in value, unless the same is returned to the conductor or agent, and freight paid at of a passage for every $500 in value over that amount.

The 1½ P. M. train from Cincinnati, and the 2 40 P. M. train from Xenia, will be discontinued on and after Monday, the 10th instant.

A freight train will run daily.
47tf W. H. CLEMENT, *Sup't.*

PHILADELPHIA, WILMINGTON & BALTIMORE RAILROAD.—1847.

Winter Arrangement.

Philadelphia for Baltimore...8 a.m. and 4 p.m.
Baltimore for Philadelphia...9 a.m. and 8 p.m.

Connecting in Baltimore with Mail Lines south and west, as per notice of the Baltimore and Ohio Railroad—and with Mail Lines north from Philadelphia, both morning and afternoon.

Sundays, the *Morning* Lines do not run in either direction.

Accommodation train from Wilmington to Philadelphia, leaves Wilmington at 8 a.m., and returns at 2 p.m. J. R. TRIMBLE,
2tf *Engineer and General Superintendent.*

LAWRENCE'S ROSENDALE HYDRAULIC Cement. This cement is warranted equal to any manufactured in this country, and has been pronounced superior to Francis' "Roman." Its value for Aqueducts, Locks, Bridges, Flooms and all Masonry exposed to dampness, is well known, as it sets immediately under water, and increases in solidity for years.

For sale in lots to suit purchasers, in tight papered barrels, by JOHN W. LAWRENCE,
142 Front street, New York.

☞ Orders for the above will be received and promptly attended to at this office. 32 1y

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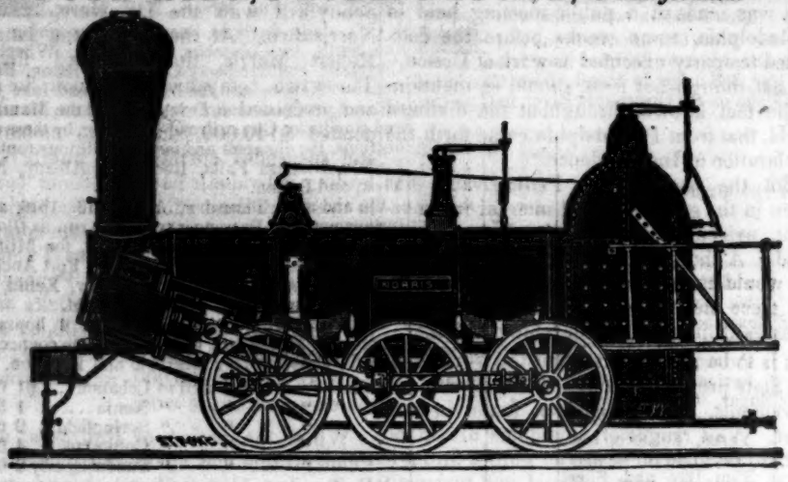

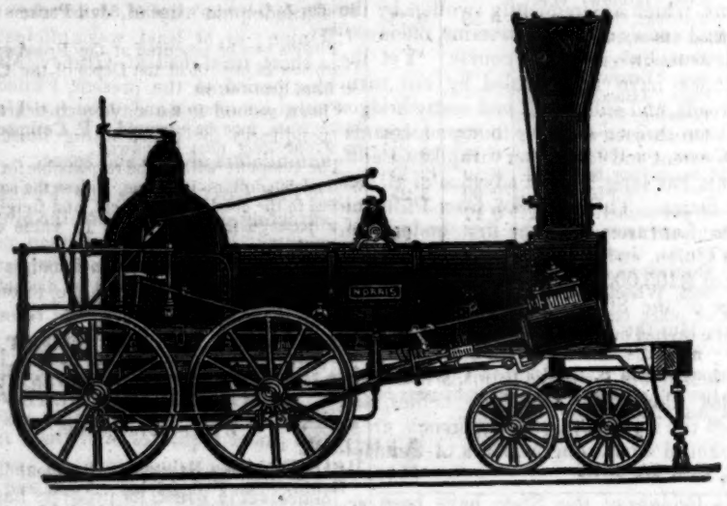

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Class	1,	15	inches	Diameter	of	Cylinder,	× 20	inches	Stroke.
"	2,	14	"	"	"		× 24	"	"
"	3,	14½	"	"	"		× 20	"	"
"	4,	12½	"	"	"		× 20	"	"
"	5,	11½	"	"	"		× 20	"	"
"	6,	10½	"	"	"		× 18	"	"

With Wheels of any dimensions, with their Patent Arrangement for Variable Expansion.

Castings of all kinds made to order: and they call attention to their Chilled Wheels, for the Trucks of Locomotives, Tenders and Cars.

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25,000 to 30,000 made weekly. 35

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The works being on an extensive scale, all orders will be executed with promptness and despatch. Communications addressed to Mr. William H Dobbs, Superintendent, will meet with immediate attention. ANDREW C. GRAY,

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VALUABLE PROPERTY ON THE MILL Dam For Sale. A lot of land on Gravelly Point, so called, on the Mill Dam, in Roxbury, fronting on and east of Parker street, containing 68,497 square feet, with the following buildings thereon standing.

Main brick building, 120 feet long, by 46 ft wide, two stories high. A machine shop, 47x43 feet, with large engine, face, screw, and other lathes, suitable to do any kind of work.

Pattern shop, 35x32 fe. with lathes, work benches,

Work shop, 86x35 feet, on the same floor with the pattern shop.

Forge shop, 118 feet long by 44 feet wide on the ground floor, with two large water wheels, each 16 feet long, 9 ft diameter, with all the gearing, shafts, drums, pulleys, &c., large and small trip hammers, furnaces, forges, rolling mill, with large balance wheel and a large blowing apparatus for the foundry.

Foundry, at end of main brick building, 60x45½ feet two stories high, with a shed part 45½x20 feet, containing a large air furnace, cupola, crane and corn oven.

Store house—a range of buildings for storage, etc., 200 feet long by 20 wide.

Locomotive shop, adjoining main building, fronting on Parker street, 54x25 feet.

Also—A lot of land on the canal, west side o Parker st., containiug 6000 feet, with the following buildings thereon standing:

Boiler house 50 feet long by 30 feet wide, two stories.

Blacksmith shop, 49 feet long by 20 feet wide.

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From 4 inches to ¼ in calibre and 2 to 12 feet long, capable of sustaining pressure from 400 to 2300 lbs. per square inch, with Stop Cocks, T's, L's, and other fixtures to suit, fitting together, with screw joints, suitable for STEAM, WATER, GAS, and for LOCOMOTIVE and other STEAM BOILER Flues.

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PATENT INDESTRUCTIBLE WATER Pipes. The subscribers continue to manufacture the above PIPES, of all the sizes and strength required for City or Country use, and would invite individuals or companies to examine its merits.—This pipe, unlike cast iron and lead, imparts neither color, oxide or taste, being formed of strongly riveted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same—thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly *indestructible*. The prices are less than those of iron or lead. We also manufacture Basons and D. Traps, for Water Closets, on a new principle, which we wish the public to examine at 112 Fulton street, New York.

j8tf J. BALL & CO.

Pennsylvania Coal Trade.

In our last, we published an excellent article from the "*Philadelphia Commercial List*,"—one of the best papers we know of—and, below, we give another from the same journal, in reference to the *Coal Trade* of Pennsylvania, etc., which will be found highly interesting.

Pennsylvania the Pioneer in Internal Improvements.—Coal Trade.—The State of Pennsylvania has claims which seem to be imperfectly understood by her sisters of the Union. The reason probably is, that those claims have failed of being properly asserted. In the history of valuable discoveries, and of pioneer operations in the great works which are to give character and wealth to our nation, Pennsylvania, and the City of Philadelphia, in particular, is entitled to no secondary place. While all due honor is cheerfully accorded to the city of Boston, for the liberality and successful enterprize of her citizens, justice to Philadelphia demands that there should be, in the comparison, a more distinct remembrance of what she has done, than appears generally to prevail.

The great fact that in all works of Internal Improvement, Pennsylvania has been the pioneer, is one which eminently deserves the consideration of the country. If a wider range of details were taken, it would be interesting to dwell on such facts as these, viz: that the Quadrant was here invented by Godfrey—that here Franklin taught men how to control the lightnings of heaven—that on the Delaware, at Philadelphia, John Fitch first proved the power of his rude steamboat, and that it was Fulton, a native of Pennsylvania, who immortalized his name, by maturing that wonderful invention—that the first Locomotive was set in motion near the corner of Ninth and Market, by its inventor, Oliver Evans, who, with the foresight so often noticed as a characteristic of great discoverers, declared, that the time would come, when one would "breakfast in New York, dine at Philadelphia, and sup at Baltimore." Here also was situated the first Bank established in the country, and the first Insurance Office. Here was organized the first Sabbath School, an honor, surely, to be appreciated throughout the length and breadth of our Union. Philadelphia first showed what might be done in supplying cities with water, by her astonishing Fairmount Water Works. In her Eastern Penitentiary, she furnished a model for Institutions of that class, which has been extensively approved and imitated, both in this country, and in Europe. The first public Hospital in the United States, was the Pennsylvania Hospital. The first Institution for the Blind, was that established in this city. Here, too, before the Revolution, the great discovery which has given us the Magnetic Telegraph, led Franklin to give signals by electricity across the Schuylkill

In such a review, it might be added, that the merchants of Philadelphia, at an early period, had the patriotism and the liberality, to build a frigate, and present it to the United States Government, the only instance of the kind on record; and the State of Pennsylvania erected a house in Philadelphia, and offered it as a present to Washington. Here, also, a stand was taken against the exactions of Great Britain, in advance of Boston herself. The first opposition to the landing of Tea was made at a public meeting held in Philadelphia, some weeks before the celebrated tea-party executed its work at Boston.

Last, though not least, should be mentioned the fact known throughout the civilized world, that from Philadelphia came forth the Declaration of Independence.

But the part which Pennsylvania has taken in the great works of internal improvement, evidently needs to be better understood. A thorough investigation of this subject would cause surprise in many quarters, and place the character of our City and Commonwealth in a most honorable position.

It is to be remembered that the surface of this State presents an obstacle in internal improvements, greater than is found in any other. Vast ranges of mountains are to be scaled, because there are no gorges through which roads can pass. Rapid and turbulent streams, which are frequently swollen by the rains and snows of the mountains, often carry destruction in their course. Yet the mountains have been scaled by our turnpike roads, and substantial and costly bridges have been thrown over the thousand streams. In the extent and cost of her turnpikes, Pennsylvania has long been in advance of all her sister States. The turnpike from Philadelphia to Lancaster, was the first undertaken in the Union, and was completed in 1794, at a cost of $465,000. Subsequently, the whole surface of the State was traversed by these roads. But the day of turnpikes has passed away; and the famous Conestoga wagons, with their noble six-horse teams, whose bells sounded along the mountain defiles, and warned the traveller of their approach, are to be reckoned among the wonders of Pennsylvania, as it was.

The Bridges of this State, have been accounted one of its remarkable features. The Schuylkill "Fairmount Bridge," erected in 1798, at an expense of $300,000, was the first great work of the kind contemplated in this country. The first Fairmount bridge, with its span of 348½ feet, outrivalling the famous bridge of Shauffhausen, and the Wire Bridge erected in 1817 at the Falls of the Schuylkill, which served to suggest the idea to European builders, were an honor to Philadelphia. The bridges in the interior, by their number, and their substantial, and even bold character, have done honor to the State.

For the introduction of Canals, as well as Turnpikes, to the public attention, the country is indebted to Pennsylvania. Even William Penn seems to have meditated on the project of connecting the Susquehannah with the Schuylkill; and in 1762, David Rittenhouse and Dr. William Smith surveyed a canal route for the purpose. At that early day, these gentlemen had in view the connecting of the Lakes and the Ohio Canal with the Delaware, by a route of nearly 600 miles! The survey, under the authority of the Legislature of Pennsylvania, was accomplished in 1769. In 1791, a company was incorporated for connecting the Susquehannah and the Schuylkill; and in 1792, another was incorporated for connecting the Schuylkill with the Delaware, by way of Norristown. At the head of the latter was Robert Morris, the celebrated financier. These two companies undertook the work, and proceeded far with it, when, having expended $140,000, they were embarrassed, and suspended operations, a number of the leading individuals having become bankrupt in this Herculean effort. These beginnings, however, resulted at length in the completion of the Union Canal. The first Tunnels excavated in the Union, were in Pennsylvania. The first survey of the Chesapeake and Delaware Canal, was made in 1769, by order of the American Philosophical Society; and as early as 1804, $100,000 were expended in the execution of the work.

When the period of Railroads arrived, Pennsylvania was again the pioneer. The Railroad at Mauch Chunk, constructed with Philadelphia capital, was the first in the Union; or, at least, was anticipated only by a short tram-road at Quincy, Mass. From that period to the present, Philadelphia has been second to no city in the Union, in expenditures for constructing these wonderful annihilators of time and space.

The Coal Trade of Pennsylvania is attracting, more and more, the attention of the country. No thinking person can contemplate its progress, without being deeply impressed with the importance, to our Union, of the State in which such vast resources of fuel are found. Were Pennsylvania annihilated, with all her mountains of Coal and Iron, how melancholy would be the condition of her surviving confederates, in regard to those two grand requisites of civilized life.

If the importance of the Coal Trade is inconceivebly great, its progress has been astonishing. Anthracite Coal was first used as fuel (on tide water) in 1820, and the total supply then sent to market, was 365 tons! a quantity much smaller than that now annually consumed by hundreds of single establishments. We now find a single Iron Manufacturing Company, in our State, consuming 60,000 tons of Anthracite, and 100,000 bushels of Bituminous Coals, annually.

From being regarded as a doubtful article of combustion at all, anthracite coal has come to be largely used for domestic purposes, for the production of steam in manufacturing establishments, for propelling steamboats and railroad locomotives, and more recently for the manufacture of iron, for which purpose it is employed on an immense scale. In 1840, there were no anthracite furnaces in full and successful operation. There are now 40 furnaces in blast, many of them of the largest class. Within the last three years, 18 rolling mills have been erected, which consume hundreds of thousands of tons of coal annually. This branch of business, so important in a National view, is destined to increase rapidly, as the demand for railroad iron increases in almost every section of our coun-

try. It is only by collecting details and uniting them, that the extent and importance of the coal trade is made apparent. It has already more than trebled the coasting trade of Philadelphia, and pays, annually, a freight on the shipments coastwise from this port, of more than a million of dollars. If this trade is of such importance in its comparative infancy, what will it be in its full growth?

About the year 1837, a report was made to the government by Maj. Bache, of the Topographical Engineers, on the subject of an artificial harbor or breakwater, at Cape May, in which he states, that the *insurable interest created by the Coal Trade passing around Cape May alone, already amounts to more than twenty two millions of dollars per annum*, estimating merely the vessels in ballast coming after it, and the value of the vessel and cargo carrying it to the various ports at which it is wanted. Many of these vessels bring us supplies from the ports they come from, at merely a nominal freight, instead of ballast—plaster, fish, lumber, salt, and other articles required for consumption in the interior, which add materially to the resources of the canals and railroads.

In England, coal appears to have been first used as fuel, about the close of the 12th century. In 1239, Henry III. granted a charter to the burgesses, of Newcastle, to dig for coal; which is the first legal mention of the article on record. As early as 1140, we find among the Leges Burgorum, an enactment giving special privileges to the inbringers of fuel, which is described as being wood, turves and peats. The English coal trade, which now amounts to forty millions of tons annually, may indicate to us something of what we have reason to predict in our future career.

Perhaps few persons have distinctly considered the aggregate expenditure to the improvements designed to facilitate the transportation of coal from our vast coal fields. Let us look at some definite statistical account of these operations:

Names and Cost of the Canals and Railroads leading to the Coal Mines:

Lehigh Coal Region.	Canals. Length.	Railroads. Length.	Cost.
The Lehigh Navigation—Extends fm. Easton to Whitehaven, 71 miles, and thence to Stoddartsville, 16 miles, there is an improved navigation	87		$4,555,000
Whitehaven and Wilkesbarre Railroad—From Whitehaven to Wilkesbarre, with three inclined planes and one tunnel		20	1,350,000
Mauch Chunk Railroad—Fm. Summit and Room Run mines to Mauch Chunk, and back tracks		36	600,000
Beaver Meadow Railroad—From the Beaver Meadows to landing on Lehigh canal		26	360,000
Hazleton Railroad—To Lehigh Canal		10	120,000
Buck Mountain railroad—To Lehigh Canal		4	40,000
Summit Railroad		2	20,000
Total Lehigh Improvements,	87	98	$7,045,000
SCHUYLKILL REGION.			
The Schuylkill Navigation—commences at Philadelphia and terminates at Port Carbon, (including cost for enlarging to this time)	108		$5,675,000
The Reading Railroad—Extends from Richmond to Mount Carbon, with a branch from the Falls of Schuylkill to the Columbia Railroad, at Peters' Island, including cost of cars, locomotives, etc.		93	11,000,000
Little Schuylkill Railroad—Between Port Clinton and Tamaqua, cost $280,000, and new rails now laying, $220,000		20	500,000
Mine Hill and Schuylkill Haven Railroad—Cost $430,000; new rails and 7¼ miles extension to Swatara, $120,000		55	550,000
Danville and Pottsville Railroad—Unfinished and only part in use		29¼	680,000
Mount Carbon Railroad		7	155,000
Mount Carbon and Port Carbon Railroad		2¼	120,000
Schuylkill Valley Railroad		14	300,000
Mill Creek Railroad		6	120,000
Railroads constructed by individuals, aggregate		70	180,000
Railroads under ground in the mines		60	75,000
Total, Schuylkill	108	357	$19,365,000
OTHER PLACES.			
Lykens' Valley Railroad—To Susquehanna Canal		16	$200,000
Wisconisco Canal—To Millersburg on Susquehanna	12		70,000
Swatara railroad—To Union Canal		4	20,000
Lorberry Railroad		4	20,000
Total, other places	12	24	$310,000
RECAPITULATION.			
Lehigh Improvements	87	98	$7,045,000
Schuylkill	108	244	19,355,000
Other places	12	24	310,000
Total	207	479	$26,610,000
To these must be added the Delaware and Hudson Canal, 108 miles long, and Railroad, 24 miles, cost			$3,250,000
Morris Canal, 108 miles long, constructed to carry coal to New York, cost			4,000,000
Total, as above			26,610,000
Grand Total			$34,060,000

Total length of Canals, 417 miles.
Total Railroads.....503 "

The Coal Trade gives employment to a very great number of persons. Indeed, nearly all the cost of the article is the result of labor. In its locality, it is worth only from 25 to 50 cents per ton; averaging 35 cents per ton. But in all the operations connected with mining and the transportation, a vast amount of labor is employed. We must take into account, not only the miners, and the boatmen and brakemen on the canals and railroads, and the hands on board the transporting vessels, and the cartmen at the places of delivery, but also the thousands employed at the same time, in making the necessary railroads and canals, the locomotives and stationary engines, the boats, etc., etc.

The sums thus invested in providing avenues for the coal trade, may be computed; but the enhanced value of lands, and the property which appears in smiling villages where once roamed the panther and the bear, baffle all attempts at calculation.

These exhibitions of the extent of the coal trade, and of its importance to the Union, lead us to ask whether this interest has not a claim upon the government for protection and encouragement. If not, how could such a claim be conceived of as possible? What operations can be more intimately connected with the prime elements of National growth and power? What political wisdom can discern the propriety of withholding the protecting power of the government here, unless it be that which denies, altogether, the justice and policy of any restrictions on the disheartening competition of other nations, which is fitted to keep back our own enterprizes for centuries?

Now, by way of contrast, let us take the total amount of capital invested in all the manufacturing establishments at Lowell, and see how it compares with the above expenditures. During a visit to that remarkable city, last summer, we obtained a copy of the "Statistics of Lowell Manufactures for 1846." From it we learn the following particulars. The amount of capital invested in all the factories, including buildings, machinery, houses for the operatives, etc., is as follows:

Merrimack Manufacturing Co.,	capital,			$2,000,000
Hamilton	"	"	"	1,200,000
Appleton	"	"	"	600,000
Lowell	"	"	"	600,000
Middlesex	"	"	"	750,000
Suffolk	"	"	"	600,000
Lawrence	"	"	"	1,500,000
Tremont Mills	"	"	"	600,000
Boott Cotton Mills			"	1,200,000
Massachusetts Cotton Mills,			"	1,200,000
Lowell Machine Shop			"	300,000
Total capital				$10,550,000

Thus, it will be seen, that the whole amount invested in all the manufactories at Lowell, is *less than one third* the sum actually expended in constructing avenues for bringing Pennsylvania coal to market.

The number of vessels of all descriptions cleared at Philadelphia and Bristol, laden with Lehigh coal, during the same period, amounted to 1246, carrying 161,282 tons of coal.

Total number of vessels cleared from the port of Philadelphia, in 1846. laden with coal, as far as ascertained, *eight thousand three hundred and seven.*

Here, then, next to the whale trade, is the greatest nursery for seamen.

The quantity of coal which passed through the Delaware and Raritan Canal, to New York, has been as follows:

1842	171,754 tons.
1843	198,352 "
1844	267,496 "
1845	372,072 "
1846	339,924 "

On what grounds can our government reasonably hesitate to put forth its best energies for the sustaining of the great coal and iron interest of Pennsylvania—a Pennsylvania interest indeed, geographically, but a National interest in all its great ultimate bear-

ings, if such a thing as a National interest can be known or conceived of.

We feel that such statements as those which we present to our readers this week, must powerfully arrest the attention of thinking men. In thus exhibiting, in accurate statistical manner, the resources and energies of Pennsylvania, we cannot be exposed to the imputation of a vain-glorious spirit; and the information communicated must be new, in a great measure, to most of our readers, and impressive to all. We propose, in a future number, to exhibit, in a full and accurate manner, the iron interest of Pennsylvania.

Water for Saratoga.

The facts embodied in the annexed account from the Saratoga Republican, of the recently constructed Water Works of that place, will interest the people of many villages which are not yet, but ought to be, similarly provided for. The Republican says:

The recent experiment of supplying this village with water, has pretty conclusively established the fact that an abundant supply of water may be obtained, and that the indestructible water pipes manufactured by J. Ball & Co., at 112 Fulton street, New York, are decidedly superior to any other yet invented. Unlike cast iron and lead, this pipe imparts neither color, oxide or taste, being formed of strongly rivetted sheet iron, and evenly lined on the inside with hydraulic cement. While in the process of laying, it has a thick covering externally of the same; thus forming nature's own conduit of stone. The iron being thoroughly enclosed on both sides with cement, precludes the possibility of rust or decay, and renders the pipe truly indestructible. The prices are less than those of iron or lead, and persons or associations about to supply themselves with water, will not only find this kind of pipe preferable in every respect, to any other in use, but the patentee, Mr. Ball, who owns the entire right in this State, is an honorable, intelligent and faithful man to deal with. He has nearly finished a contract for laying about $14,000 worth of pipe for our village, and notwithstanding the doubts previously entertained of its goodness and durability, the undertaking is now regarded with favor by more than nineteen twentieths of our inhabitants. Mr. Ball labored under many disadvantages, in performing his contract with this village. He had three commissioners, five trustees and forty others, to consult in the matter. The trench was netther dug nor covered according to his instructions—it was late in the season before he began the work—he extended it nearly half a mile in the village, when he had agreed to come only to Broadway this Fall—his workmen were mostly strangers to him, and unexperienced in the business, and he was often disappointed in not receiveiving his materials from New York, in consequence of unreasonable delays upon the river or railroad. Yet, notwithstanding all these embarrassments, he progressed much farther with the work than he had agreed or was expected to by those who employed him. What has been done, appears to be in capital order, although it cannot be expected that the work will be perfect until it is carefully examined and repaired in the Spring. Even the Croton Water Works, for the city of New York, which are laid in cast iron pipes, require continual guarding and repair.

The long desired object of obtaining a good supply of water is about accomplished. The pipes should be extended and hydrants established in all parts of the village, and if our citizens consult their true interests, they will see that sufficient means are promptly provided for carrying the water through all the principal streets with the opening of Spring. The $10,000 loan is about expended, an account of which, with the vouchers, will soon be exhibited by the commissioners.

The trustees have pleged $280 per annum of the water rents, being the annual interest on $4000 more and making the whole investment $14,000. With this, the pipe is to be extended some —— feet next spring; and when this is done, the work must stop unless additional funds are provided. 'Tis true, the trustees might pledge $20 per annum more of the water rents, and thus perhaps, expend $285 71 more than the $14,000, but this would be the limit to which they can go, the residue of the water rents over and above the $300, being pledged by the law toward extinguishing the principal of the $10,000 loan. The trustees have become obliged to Mr. Ball & Co., to apply to the legislature for a law authorizing an additional loan of $4000, and thus relieve the $280 water rents from the pledge for laying the pipes. What objection can there be to increasing the loan from 14,000 to $16,000? This would extend the water to every desirable part of the village, and locate a hydrant on the corner of all the principal streets—an objection of the utmost importance to every tax payer in town. One destructive fire, such as we have frequently had, would destroy more property than the cost of the whole water works; and by locating hydrants at suitable points, fires would be less frequent and less disastrous—rates of insurance would no doubt be reduced—real estate would be increased in value, and the inducements to make investments at Saratoga, would be proportionably multiplied. The want of a good supply of water has been a serious obstacle to the prosperity of our village. Our citizens have felt it—strangers and visitors have observed it; and now that it is ascertained that first rate water for all purposes, can be obtained, we should be inexcusable in delaying to profit by the enterprize. Nor should we stop with a partial or unequal distribution of these benefits to the more central parts of the village. All are required to pay their full proportion of the tax, and all should be allowed to participate in the privileges to be gained from the undertaking. Those whose property is located in the immediate vicinity of the hydrants, who enjoy the privileges of the water, should show their liberality by uniting with their less favored neighbors in an application to the legislature to extend the works to all parts of the village. Many of them, no doubt, will do so, and we have yet to learn that any man will be so selfish or unreasonable as to oppose a project designed to be a lasting benefit to our citizens at large.

We find in the Railway Chronicle for December 26, the following interesting trial in the Rolls on Steamboat Engagements:

The decision of Lord Langdale in the Rolls Court, on an application to dissolve the injunction granted at the instance of a proprietor, against the Eastern Counties company, to restrain the latter from completing the agreement entered into with the Harwich steam packet company, is of considerable interest. The observations of his lordship on the merits of the case are exceedingly clear and decisive. They expressly declare that the employment or engagement of the funds of a railway corporation for purposes not contemplated in the Act by which it exists—whatever may be the advantage expected to accrue from this use of them—is contrary to law, although it may have been established in practice. That neither the director nor a majority of the shareholders, can legally impose on any railway proprietor liabilities foreign to the declared object of the partnership, as defined by the company's Act: that the objects of a railway company are confined to the making, maintenance and working of the traffic of the railway itself except where power to transact other business or enter into other agreements is expressly given: that, allowing reasonable latitude in the construction of the terms by which the general purposes of the railway (including the promotion of its traffic) may be interpreted—a latitude sufficient to meet the objection that a strict reading of the law would forbid a variety of minor arrangements conducive or necessary to the business—it could not, by the largest interpretation, include the support of another company, engaged in a speculation of a different kind, and liable to serious risks—nor authorize the adoption or guarantee of the liabilities of any such foreign enterprize. On these grounds, the Judge refused to dissolve the injunction.

Sheerness—The whole of the guns for the old fortifications have now arrived from Woolwich. They are 63 in number, and are of the following descriptions: 4 eight inch guns, 98 cwt. each, 11 feet long; 29 eight inch guns, 66 cwt. each, 9 feet long; 26 six-and-a-half guns, 56 cwt. each, 9 feet 6 inches long, and 4 six and a half inch guns, 32 cwt. each, 6 feet 6 inches long. The workmen now await the arrival of the carriages and platforms from Woolwich: the masonry on weich they are to rest is all ready to be laid down. The guns are to be placed as follows: 20 on the Halfmoon Battery at the Point, 13 on the Admiral's platform overlooking the said battery, and the remaining 30 along the works protecting the Barracks. The new works progress rapidly; the battery forming opposite the dockyard yard is now carried to the height of the platform; its further progress has, however, been deferred till the formation of the deep ditch by which it is to be protected, and on which all the workmen are now concentrated. Wooden profiles are now up for another battery, with which this is to be connected by a musketry wall, while to the eastward it will be continued into the bastions extending from the Thames to the Medway.

A Brief History of the Philadelphia and Reading Railroad.

We find in a late number of the "Philadelphia Commercial List," (published by Col. C. G. Childs, and, by the way, a most excellent journal of its character,) the following succinct and comprehensive description of the origin and progress of the Philadelphia and Reading railroad. This road has now become one of the most important public works in this country, and we have no doubt the facts as set down in the article which follows, may be relied on, as generally correct. Under the management of JOHN TUCKER, Esq., its able president, its prospects are flattering, and we are happy to know, that its business is at this time so valuable, and its prosperity advancing so rapidly as it is. We learn that about one-third the stock of this road is owned in Boston—one-third in Europe—and the remainder by citizens in this city and vicinity. The history of the road, as below, will be read with deep interest, by all who are concerned in this kind of enterprize.

"This railroad was projected in 1833, a charter obtained in 1834, surveys made the same year, and 41 miles put under contract and construction in 1835.

It was originally designed for its present purpose, an outlet, or avenue to market, for the Schuylkill coal region; but its first charter extended only to that town which has the honor of giving it a name, the borough of Reading, 59 miles from its terminus on the Delaware river, near Philadelphia; as the right of constructing a railroad between Reading and Port Clinton, 20 miles, had already been granted to another corporation, the "Little Schuylkill Railroad Company," terminating at the latter point. From insufficient means, this company were unable to extend their road, and yielded their right and charter to the Reading railroad company, who, with a further extension of their charter, beyond Port Clinton to Pottsville, went into an active prosecution of the whole work from Pottsville to the Delaware, 93 miles, under one charter, now known as the Reading Railroad.

Every Pennsylvanian is familiar with the great embarrassments to the business of the country, checking commercial enterprize, disastrous to every branch of industry, and fatal to public and private credit, during the period from 1838 to 1842. Notwithstanding all these difficulties, the friends of this road pushed steadily on with its construction, taxing their energies, their means, and their credit, to the utmost, to insure its speedy completion; and, on the 1st day of 1842, the 1st locomotive and train passed over the whole line, between Pottsville and Philadelphia.

From that date to the present, its business, its revenue, and its credit, have increased, in a degree scarcely paralleled by any similar improvement, until its tonnage and receipts are measured, as at present, by millions.

Two continuous tracks of railway extend the whole distance of 93 miles, from Mount Carbon, near Pottsville, to the Delaware river, three miles above the heart of the city of Philadelphia; with a branch also laid with a double track 1¼ miles long, connecting, by the State road, with the principal business street of the same city, for the passengers, merchandize, and city coal business. The rail used is of the H pattern, with both top and edges alike; and weighs 44½, 52½ and 60 lbs. to the yard; the lightest having been first, and the heaviest last used. A few tons of other rails, purchased before a further supply of the pattern adopted for the road could be obtained in England, and varying from 51 to 57 lbs. per yard, are also in use.

The track is laid in the most simple manner, the lower web, or base of the rail, being notched into 7 by 8 white oak cross-sills, and these laid on broken stone, 14 inches deep, and well rammed. This method is found admirably calculated for the enormous tonnage of the road, being rapidly and economically repaired and replaced, securing a thorough drainage and preserving its line and level true, at all seasons of the year.

The grades of this road are the chief elements of its success in revolutionizing public opinion on the subject of the carriage of heavy burdens by railway. From the most important branch coal-feeder of the road, at Schuylkill Haven, to the Falls of Schuylkill, a distance of 84 miles, the grades all descend in the direction of the loaded trains, or are level; with no more abrupt descent, than 19 feet per mile. At the Falls, an assistant locomotive engine, of great power, pushes the train, without the latter stopping, or any delay, up a grade of 42½ feet per mile for four-tenths of a mile, leaving it on a descending grade, within four miles of Richmond, whither it is readily conveyed by the same engine which started from Pottsville, never leaving her train.

The bridges on the line, are of great variety in plan and material of construction, stone, iron and wood. The most perfect and beautiful structure on the road, if not in the State, is a stone bridge over the Schuylkill near Phœnixville, built of cut stone throughout, with four circular arches, of 72 feet span, and 16½ feet rise each, at a cost, with ice-breakers, of $47,000. There are 75 other stone bridges and culverts, varying from 6 to 50 feet span; all of circular arcs, spanning water-courses, branches of the Schuylkill and roads. There are seven bridges from 25 to 38 feet span each, built of iron, trussed after the "Howe" plan, with wrought iron top, and bottom chords, wrought iron vertical ties, and cast iron diagonal braces. These bridges are stiff and light, and present a very neat and handsome appearance. As, however, the floorings is of wood, and therefore liable to decay and accident, they have only been used where the width and depth rendered stone bridges impracticable, the latter being always used in replacing wooden structures, wherever it was practicable. There are 22 long wooden bridges, varying from 61 to 160 feet span, built on various principles, chiefly of lattice work, assisted by heavy arch pieces. Of this latter description, the bridge over the Schuylkill at the falls, is a fine specimen. It is 636 feet long, consisting of 4 spans of 134, two of 152, and one of 160 feet respectively, with its deck 46 feet above the river. There is one bridge built on "Burr's" plan, with double arch pieces of 149 feet span; and one on "Howe's" plan, 156 feet span, also assisted by arch pieces. Besides the above, there are 28 wooden bridges of short spans, from 14 to 39 feet, built of King post, Queen post, "Howe's truss" and joists.

There are four tunnels on the road. The longest of these is near Phœnixville, 1,934 feet long, cut through solid rock, worked from five shafts, and two end breasts; deepest shaft 140 feet; size of tunnel 19 feet wide, by 17½ high; total cost $153,000. Another tunnel at Port Clinton is 1,600 feet long, worked from the two ends only; material, loose and solid rock mixed; 1,300 feet are arched; depth below the surface of ground, 119 feet; total cost, $138,000.—The Manayunk tunnel is 960 feet long, though very hard solid rock, worked from two ends; depth below surface, 95 feet; total cost, $91,000. Another tunnel, under the grade of the Norristown railroad, and through an embankment of the latter, is 172 feet long, formed of a brick arch, with cut stone facades.

The depots on this road, are all substantially built, but with a view to use, rather than ornament. At Schuylkill Haven, three miles from Pottsville, is erected a spacious engine house, round, with a semi-circular dome roof 120 feet diameter, and 96 feet high; with a 40 feet turning platform in the centre, and tracks radiating therefrom, capable of housing 16 second class engines and tenders. At Reading, are located the most complete, extensive and efficient workshops, and railroad buildings of every description, to be found in the country. The company's property covers here, besides the railroad tracks, 36 acres, the greater part of which is already in use, for the various operations required to keep this vast machine in life and motion. The main machine shop is 159 by 70 feet, filled with the most valuable tools and machinery, all made, with the exception of three or four lathes, in the company's workshops, by their own mechanics. Other machine shops, one 87 by 40 feet, are used for fitting iron and brass exclusively.

The iron foundry is 164 by 32 feet, with cupolas. The largest blacksmith's shop is 121 by 31 feet, 57 smith's fires being daily in use in the works, all blown by fans, driven by steam. The main carpenter's shop is 140 by 46 feet, with a pattern shop in the second story.

The iron coal cars, tenders and smoke pipes, are made and repaired in a shop 123 by 83 feet.

A merchandize depot, just completed, is 124 by 84 feet, to accommodate that rapidly increasing branch of business. About a mile below the Reading depot, where the railroad is nearest the river, most efficient water works have been lately constructed, consisting of a reservoir, on the Neversink hill side, 51 feet above the rails, holding 700,000 gallons of water, supplied with a force pump worked by a small steam engine. Attached to this station, are also two separate tracks with coal shutes beneath, 300 and 450 feet long each, for the use of the town; two wood and water stations; a small portable steam engine for sawing wood, a refreshment house for crews of engines stopping to wood or water; a brass foundry, passenger car house, passenger rooms, offices, etc. All the machinery of the main shops and foundry, is driven by a very handsomely finished stationary engine, with double cranks, of 35 horse power, built entirely on the works.

At Pottstown station, 18 miles below Reading, extensive and efficient shops have also been erected, chiefly for work connected with the bridges and track of the road, and work of various descriptions. The principal shops here, are 151 by 81, 101 by 41, and 81 by 44 feet. The first shop is covered with a neat and light roof, built of an arched "Howe truss," forming a segment of a circle, 78½ feet span, by 16 feet rise.

At Richmond, the lower terminus of the road, at tidewater, on the river Delaware, are constructed the most extensive and commodious wharves, in all probability, in the world, for the reception and shipping, not only of the present, but of the future vast coal tonnage of the railway; 49 acres are occupied with the company's wharves and works, extending along 2,272 feet of river front, and accessible to vessels of 600 or 700 tons. The shipping arrangements consist of 17 wharves, or piers, extending from 342 to 1,132 feet into the river, all built in the most substantial manner, and furnished with schutes at convenient distances, by which the coal flows into the vessel lying alongside directly from the opened bottom of the coal car in which it left the mouth of the mine. As some coal is piled or stacked in winter, or at times when its shipment is not required, the elevation of the tracks by treslings, above the solid surface or flooring of the piers, affording sufficient room for stowing 195,000 tons of coal. Capacious docks extend in shore, between each pair of wharves, thus making the whole river front available for shipping purposes; 97 vessels can be loaded at the same moment; and few places present busier, or more interesting scenes, than the wharves of the Reading railroad at Richmond. A brig of 155 tons has been loaded with that number of tons of coal, in 130 minutes, at these wharves.

A very convenient and neat engine house, has lately been erected at this station; it is of a semi-circular shape, with a 40 feet turning platform in the centre, outside; from which tracks radiate into the house, giving a capacity for 20 engines and their tenders of the largest class, the building 302 ft. long on the centre line, by 69 feet wide. It is built in the simple Gothic style, the front supported by cast iron clustered pillars, from the tops of which spring pointed arches, and the whole capped with turretted capping. Immediately adjoining, are built spacious machine and workshops, for repairs of engines and cars, all under one roof, 221 by 63 feet. A visit to this chief outlet of the Pennsylvania coal trade, will give the best idea of its magnitude, and of the various branches of industry connected with it.

The business of this road requires a large amount of running machinery. The latter consists of 71 locomotive engines and tenders, including five in constant use on the lateral railroads in the coal region; 3,020 iron, and 1,539 wooden coal cars; 482 cars for merchandize, and use of road, and 17 passenger cars.

The engines vary from 8 to 22½ tons weight; two very powerful engines, of 27 tons weight each are used exclusively on the Falls grade, before mentioned. The iron cars weigh 2·4 tons, empty, and carry five tons of coal. The average load of each engine, during the busy months of the year, is about 410 tons of coal, (of 2,240 lbs.) The cost of hauling coal on this road, is about 35 cents per ton. Freight or merchandize, 75 cents per ton, and passengers 41 cents each, through. Its grades have chiefly secured this great economy in transportation.

The total length of lateral railroads, connecting

with the Reading railroad, under other charters and corporations, but all contributing to its business, using its cars, and returning them loaded with coal and merchandize, is about 95 miles. Some of these railroads are constructed in the most substantial manner, with the best superstructure at present used in the country.

By the monthly reports which have been made of the business of the company, it appears that the receipts from December 1st, 1845, to October 31st, 1846, have been $1,707,312 25. The receipts for the remaining month of the fiscal year, which ended Nov. 30th, 1846, will be sufficient to swell the gross receipts to about $1,900,000.

In the last annual report, the managers estimated that the gross receipts would be, for the same period, $1,725,000. From this statement, it appears that unless the expenses vastly exceed the estimate given in the same report, the result of the year's business will prove very gratifying to the stockholders.

Correspondents will oblige us by sending in their communications by Tuesday morning at latest.

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AMERICAN RAILROAD JOURNAL.

Published by D. K. MINOR, 105 Chestnut St., Philadelphia.

Saturday, February 20, 1847.

PHILADELPHIA AND READING RAILROAD.—Passenger Train Arrangement for

1847.

A Passenger Train will leave

Philadelphia and Pottsville daily, except Sundays, at 9 o'clock A. M.

The Train from Philadelphia arrives at Reading at 12 18 M.

The Train from Pottsville arrives at Reading at 10 43 A. M.

	Fares.	Miles.	No. 1.	No. 2.
Between Phila. and Pottsville,		92	$3·50 and	$3·00
" "	Reading,	58	2·25 and	1·90
" Pottsville	"	34	1·40 and	1·20

Five minutes allowed at Reading; and three at other way stations.

Passenger Depot in Philadelphia corner of Broad and Vine streets. 8tf

The Iron Trade.

We have received, by the *Sarah Sands*, our London papers to the 18th of January, inclusive, and also an interesting letter from a friend, from which we learn that the prices of iron are fully sustained—and large orders for bars unexecuted, as the limit being below quoted prices, and sellers will not recede. Bars are quoted: Welsh at £9, and Staffordshire £11 *a* 11 10. Rails average £9 15 *a* £10. There is evidently an upward tendency, though slight, in the trade—and we are of the opinion that it will advance still further in the course of the current year.

The following statement, in relation to the iron manufacture in Scotland, will be found interesting: There were in blast in Scotland, previous to 1846, 88 pig iron furnaces—24 out of blast, and 4 building. In 1846 *ten* new ones were erected and put into blast, and 8 new ones building. On the 1st of January, 1847, there were 98 in blast—24 out of use and 12 building.

There were shipped *from* Great Britain to foreign countries, in 1845, 54,671 tons, and in 1846, 119,100 tons, showing an increase of 64,429; and coastwise, in 1846, 257,851, making the total shipment for that year, 376,951. Local and inland consumption, for all purposes, 288,049 tons; and stock on hand, December 31, 1846, 145,000 tons—thus showing the make of last year to be 810,000 tons.

It is a curious fact, shown by this statement, that while the export of 1846 was *more* than *double* that of the previous year—the amount sent to the United States was only about *one-half* as great—viz: in 1845, there was shipped to the United States 25,915 tons, and in 1846, only 13,918 tons!

Extract of a Letter from an intelligent friend now abroad, dated "7 Howard Street, Norfolk Street Strand, London, January 18th, 1847."

He says: "I see by the railway papers that the *gross increase* of receipts last year, i. e. 1846, over 1845, are considerably over £1,000,000, and that upwards of £900,000 of this sum has been yielded by *fifteen* companies, among which are the Dublin and Drogheda, Eastern Counties, Great Western, South Western, etc. The revenue of the Dublin and Kingstown has *decreased*—a solitary instance—£3,900. The following *great* increase of receipts per cent. for *small* increase of miles, I think fully bears out what you have so often stated in your Journal, i.e. a railway will always *create* a business which will pay.

	Miles in 1845.	1846.	Increase.	Pr ct.
Norfolk railway,	59	70	11 miles*	135
York and N. Midland,	53	162	109 "	86
Sheffield and Manch.,	19	45	26 "	82
Eastern Counties,		116		62
South Eastern,	88	140	52 "	23
London and Brighton,	60	112	52 "	15
Manchester and Leeds,	84	117	33 "	16
London and N. Western,			say 20 "	7
Great Western,			" 20 "	7
Midland,				7

You will find on page 51, January 9, 1847, of the Railway Times, an article on the iron trade, taken from the London Price Current—which shows conclusively that the make of iron has fallen off greatly, and that there will not be a supply of railroad iron. It is said that 4,000,000 tons will be required for the British and Irish railways, already passed, and to be passed this session of parliament. If this be so, I do not see that the Pennsylvania iron makers need fear for the result of their investment in the manufacture of iron. The Eastern Counties railroad company are about to build a village on their line, of 300 houses, at a cost of £200,000, the contract having been given to builders in Stratford.—Why cannot all railways leading from cities pursue the same liberal policy, and thereby greatly benefit their interest? They have recently opened a road of about 100 miles in Prussia, between Berlin and Hamburg.

I will send you by the next regular steamer, a book recently published here, containing probably more information upon the subject of railways than any book heretofore published.

Truly your obedient servant,

EGBERT HEDGE."

In the writer of this letter the readers of the Journal will readily recognise the gentleman who has, for so many years, been connected with its publication. Mr. Hedge is well acquainted with the condition and prospects of our American railroads, and he will be apt to look at works of a similar character abroad with a critical eye, and we may therefore expect from him many interesting facts, from which we hope to draw lessons of utility and profit. Of one thing we are certain, and that is, that he will not allow an opportunity to escape him of availing himself of what may be useful to his countrymen in the extension of the railroad system in this country; and we know of no young man of his age, not a practical engineer, who would be as likely to gather as much really useful information on the subject as Mr. Hedge—and we hope, therefore, that he may be successful in his present pursuit, and thus be able to visit most of the public works in Europe—as we understand he proposes to do before he returns.

* *Agricultural.*

Progress of our Railroads.

The "Hudson River Railroad," from New York to Albany, is going forward. The subscriptions, at last accounts, amounted to $2,000,000. The amount subscribed in Sing-Sing is $50,000, in Poughkeepsie about $40,000. The "wide gauge" is talked of for this road—and the subscriptions, thus far, appear very encouraging. The New Yorkers have "waked up" at last, it would seem, and the prospect now is very encouraging for this work.

A competent and distinguished surveyor has been employed for the purpose, and a *new* route—said to possess great advantages—has been proposed for a railway between Burlington, Vt., and Ogdensburg. The line in leaving Burlington, is to run along the south side of Lake Champlain, until it reaches St. Albans—from thence through Hog Island and St. Albert, in a direct line to Rousse's Point, where every facility is found for the construction of a permanent bridge across the Richelieu; the line then pursues its course through a level track of land, a little to the south and parallel to the divisional line '45, passing through the thriving village of Malone, and from thence taking the direction up on the borders of the St. Lawrence to Ogdensburg.

About 30 miles of the Baltimore and Ohio railroad have lately been newly laid down with a rail 51 pounds to the yard. The effects of this improvement, says a cotemporary, are already manifested in the more early and regular arrival of the trains at both ends of the road, they will be further felt in the reduction of expense in the maintenance of the road and machinery, and the increased safety and comfort of the travellers passing over the line. It has been the intention of the company to extend this road to Wheeling: but the president, Mr. McLane, in a recent letter, expressed doubt of the practicability of the route, and encourages its extension to Pittsburg.

The railroad from Burlington to Brandon, Vt., has been contracted for at $7,300 per mile—a distance of fifty miles. The lowest estimate made by the engineer who located the road, was $14,500 per mile! The amount for which it has now been let out, is considerably less than any one supposed it could be built for.

The annual meeting of the Champlain and Connecticut river railroad was held at Rutland, Vt., on the 13th inst. Hon. Timothy Follett, of Burlington, was re-elected president. The division from and including the summit at Mount Holly to Bellows Falls, about 35 miles, is contracted for at something less than $12,000 per mile, on the same conditions as above set forth. The executive committee were directed to take measures for contracting for the remaining section of 31 miles, from Brandon to Mount Holly, in season to have the grading completed by January 1, 1849. It is expected that the grading, masonry and bridging of this division, will be let at a price not far from $1,100 per mile.

The Danvers (Mass.) Courier says, that measures are being taken to have the stock on the road taken up with great hopes of success. Should the road be constructed from Danvers to Boston, it will

be but a few years before all the Newburyport travel will pass through Danvers, a road from Danvers to Georgetown only being needed.

We learn by the Newburyport Herald, that a meeting of those interested in the construction of a railroad from Newburyport to Haverhill, was held at Newburyport on the 8th inst., at which a committee was chosen to procure subscriptions to the stock. The road is designed to go through Georgetown and Bradford, and will be 15 miles in length.

The Northern (N. H.) railroad company have entered into a contract with R. H. Campbell, Esq., of Philadelphia, to construct the bridge across Connecticut river, near the mouth of White river, to connect the Northern and Central roads.

Several petitions have been presented to the New York Legislature for plank roads from Rochester to Greece, to Churchville, to West Henrietta, and to Brighton. The stock is all subscribed for the Rome and Oswego plank road. It is to be commenced immediately.

The Claremont Eagle says that the Sullivan road, connecting with the Vermont Central at Windsor, will be completed by the 1st of January, 1848.

The net earnings of the Norwich and Worcester company in 1846, were over $90,000, or nearly six per cent., but the loss of the steamer Atlantic has absorbed $70,000 of it.

The receipts on the Western railroad for the two months ending January 31st, 1847, as compared with the corresponding months the previous year, show an increase of $33,133 82, viz:—Two months ending January 31, 1847:

Passengers.	Freight.	Other resources.	Total.
$50,008 93	109,680 54	4,948 66	164,638 13

Two months ending January 31, 1846:

$58,717	77,543 69	5,242 69	131,504 31
			$33,133 82

Great Central Railroad from Philadelphia to St. Louis.

BY JOHN A. ROEBLING, C. E.

Written for the Railroad Journal, and read before the Board of Trade of Pittsburg.

Railways appear to be destined to supersede all other means of intercommunication. Among the great mass of modern inventions and improvements, none perhaps are of greater importance, and will contribute more to the great and *common* interests of mankind, than RAILROADS and TELEGRAPHS. It is not improbable, that in a country like Russia, whose Autocrat has ordered the construction of *railways* upon a gigantic scale, this system of iron bands may first prove another powerful mode of enslaving more thoroughly the masses of the people, but it will surely aid in their eventual emancipation. Railroads and Telegraphs may be hailed as the latest offspring of the spirit of the present age; they have imparted a new and most powerful impulse to the social movement, from which will yet flow a vast train of beneficial results.

One of the best proofs of the advancement of mankind in *true* civilization is, that the industrial efforts of nations are no longer squandered upon the creation of vast monuments of pride and of war. The partial attempts at improvements during the middle age, have been followed by a generous rivalry among nations, states, and communities, in the construction public works of general utility and of vast extent, particularly highways, canals and railroads. So far has this system been successfully developed, that we may project works with unerring certainty in advance of population and traffic. In place of railroads growing out of commerce and wealth, the former are now creating the latter. Like a *magic wand*, they open the slumbering resources and long-hidden treasures of the earth; convert stone and iron into gold; draw into bonds of union and amity isolated individuals, as well as communities and nations; unchain long-cherished prejudices and selfishness, and cause to be made more simultaneous exertions, in all that is useful and good. The nobler feelings and senti nents of man are likewise partaking of the benefit of this general move; they will be roused to greater activity by the enlarged scope rendered accessible by the increased facilities of communication.

While *canals* and *turnpikes* (ever since their general introduction) have experienced but little improvement, because they are not susceptible of it—railroads, on the other hand, have undergone a constant change towards the better. Since their nature admitted the application of mechanical power, they have largely partaken of the benefits, which have resulted from the late astonishing developments of mechanical science. To the successful application of the mighty agency of steam, the vast extension of the great usefulness of railroads is mainly to be attributed; time itself and space have almost been annihilated. But, I may well ask, where is the country on earth, as much to be benefitted by these modern improvements, as our own? We abound in the elements of wealth, but want the means of moving, working and distributing them! Inexhaustible supplies of coal and iron invite us to use and apply them for the construction of these and other useful works of art.

The geographical features of the Mississippi valley, it is said, afford the best guarantee for the stability of this Union. But I think, that with greater confidence yet, we may entrust the future fate of our country to that great net of railways and telegraphs which soon will spread over the vast extent of its surface. No less valuable will this network prove, in a political and national point of view, in case of war. From the rapidity and certainty of conveyance, which railways afford, at all seasons of the year, they will serve as the most effective means for the concentration of troops, at points where they are wanted, and for the rapid transportation of supplies. An invasion by the most powerful enemy can be repelled with little effort. Railroads, in fact, will vastly contribute to prevent long protracted wars—civil, as well as national.

The GREAT CENTRAL RAILROAD, as I would term it, proposed to be constructed from *Philadelphia* to *St. Louis*, presents itself among similar projects of the day, foremost to the serious attention of the citizens of Pennsylvania—and with peculiar force to the citizens of Philadelphia and Pittsburg. The storm of last year having subsided and given place to a calm, favorable to the discussion of a magnificent enterprize, it becomes now our duty to consider what is the *true* interest of the two cities which are members of the same commonwealth; and to bring about a mutual understanding, while there is yet time. The question before us is no less than the *organization* of a company for the construction of a continuous railroad from tidewater to the Mississippi, or from Philadelphia to St. Louis, through the centre of Pennsylvania, Ohio, Indiana and Illinois. The whole west is invoked to assist us in this vast work, which is destined at some future day to become one of the greatest thoroughfares on the face of the globe. Preliminary steps have already been taken for the consummation of one part of this enterprize. The object of the following remark is, to advance the good cause by a candid examination of its merits.

In surveying the geographical features of the vast extent of country which is to be traversed by the contemplated railroad, we discover, that it may be located nearly through the centres of four of the richest states of the Union, Pennsylvania, Ohio, Indiana and Illinois, with an aggregate population of nearly seven millions. The whole extent of road to be constructed will be found to be within nine hundred miles. No railroad has ever been undertaken, which offers to the projectors more magnificent prospects of success. Let us look at it for one moment. Here is the city of Philadelphia forming the eastern terminus, concentrating within herself immense resources and wealth, capable of importing and exporting to any extent, and already the centre of a great manufacturing district. From this city, advancing west, we pass through the centre of Pennsylvania, by the way of Harrisburg, to Pittsburg, the great workshop of the west, the Birmingham of America. Here we meet a population of 65,000, and a vast commercial and industrial business, which will, in course of time, extend beyond *any* calculation which now can be made. Let us only remember, that there is no point on the face of the globe, and this is asserted without admitting a single exception, which is better calculated than Pittsburg and the surrounding country, for the production and manufacture of iron and machinery. This business is yet in its infancy, but will steadily increase with the population of the valley of the Mississippi. To support the above statements, I will mention, that the prospects of Pittsburg are based upon two solid foundations, which time itself cannot wear out. One is formed by the inexhaustible beds of the best quality of bituminous coal, the other by the veins of excellent iron ore discovered throughout the surrounding country.

The products of that immense industry of Philadelphia, Pittsburg, and of the greater part of Pennsylvania, are to be carried to the west by the proposed railway, to be exchanged for the rich agricultural productions of that fertile country. The travel and intercourse which will naturally grow out of this business, will be conducted by this route at all times of the year speedy and safe. The main stem of this road is to be continued from Pittsburg—not to the lake, this would at present be a great mistake—but by the most direct course to Columbus in Ohio, thence to Indianapolis in Indiana, and by way of Terre Haute and Vandalia, to St. Louis in Missouri. The object of this route is, to traverse the three great western States, Ohio, Indiana and Illinois, and terminate at St. Louis, which city is destined to become the emporium of the great valley. The principal part of the business and travel of these States will, as far as it can be directed east, be attracted by this road, legitimately, and without any farther effort, and will be safely retained for the future.

To insure to this road the travel and business of those States, and to make it triumph over its competitors north and south, its location as well as construction must be undertaken and conducted upon a plan, fully commensurate to the great objects to be gained. The business of the west is within our reach, we can grasp and retain it with unerring certainty, provided we start and act systematically throughout. The means we should employ are to be fully adequate to the magnitude of the object we have in view. Narrow, timid minds never solved a difficult problem, nor did they ever engage in a great and bold enterprize, without abandoning it in despair.

In order to consummate this great undertaking,

all the spare resources of Philadelphia and of Pittsburg are to be appropriated, and just in proportion as investments will be made, boldly but judiciously, will they be rewarded in return. This proposition is susceptible of the strongest proof. No half measures will in this case answer the end; insufficient capital, and unskillfully applied, may start the enterprize, but will not succeed in carrying through successfully, and maintaiuing it against the vigorous competition of powerful neighbors.

To be better enabled to judge correctly, I propose to take a general view of the unprecedented spectacle which at this period is presented by the generous rivalry of the States of Virginia, Maryland, Pennsylvania, New York and all the Eastern States, to secure the trade of the Great West. The people of Maine, New Hampshire, Vermont and Lower Canada, have engaged in the construction of the *Atlantic and St. Lawrence railroad*, which is to connect Portland in Maine, with Montreal in Canada. This road, once completed, will make Portland the second seaport in the east; it will become the principal port of entry for the St. Lawrence country, and will rival with Boston and New York in the trade of lake Ontario and lake Champlain.

The next great route of importance, and partly commenced, leads from *Boston* by way of *Concord* to *Burlington* on lake Champlain, thence to Odgensburg on the St. Lawrence. It is to secure to Boston the trade for which Portland is making an effort.—It is expected that the local business on the latter road will be sufficient to maintain it.

Next comes the Great Western road from Boston to Albany, and its extension to lake Erie by the New York roads. This route claims a little more of our attention, as it will, when completed, come to some extent in competition with our own. The great success of the Western road is well known; it has astonished and alarmed the city of New York, which like Venice of old, never dreamed of the possibility that any part of their so well established business could be diverted. The Western railroad presents a most forcible argument in support of this *new doctrine*, that the best water communications are destined to become subservient to railroads, for travel as well as freight. I draw your attention to this question: if the Hudson river between New York and Albany, the best steamboat navigation in the work, 150 miles in extent, is not capable of commanding the trade and travel exclusively, in competition with a railroad of over 200 miles long, from Albany to Boston, with two high summits and objectionable gradients, what may be expected of the success of steamboat navigation on the upper Ohio, in competition to a railroad well located and with moderate gradients.

Freight is carried by steamboats at the rate of from 2 to 5 cents per 100 lbs. per 100 miles. This is at the rate of from 40 cts. to $1 per ton per 100 miles. Coal is transported from Pottsville to Philadelphia by railway at less than $1 per ton per 100 miles.—But whether steamboats charge a few cents more or less, will little influence the transport of the great west, while the saving of transhipment and commission, and the certainty, rapidity and safety of conveyance, are of much greater moment to the merchant and the traveller.

The sagacious citizens of Boston, when they commenced the Western railroad, had matured an extensive plan of operations, which they are now successfully carrying out. They knew that they could divert a portion of the trade of New York, by the construction of the Boston and Albany road.—They were met by the capitalists of Albany, and have returned their favors by aiding the Auburn and Rochester road. They have succeeded in establishing an uninterrupted railroad communication from Boston to Buffalo. The city of New York with her great natural advantages, looked at their efforts with indifference and contempt, but wondered how their eastern neighbors, whose mercantile sagacity has become proverbial, could forget themselves in undertaking such a visionary scheme, of diverting the trade and travel of the Hudson river!

The real estate of the city of New York, as is stated by various statistical writers, advanced since the completion of the New York canal, from $100,000,000 to $252,000,000, when in 1840 the Western railroad was opened. Here progressive increase has since stopped, while the wealth of Boston, during the same period, nearly doubled, which increase, it is admitted by all parties, is principally owing to the success of the Western road.

The great example of Boston cannot be represented to the contemplation of the citizens of Philadelphia and of Pittsburg with sufficient force. The success of the Western road is unparalleled in the history of railroads. A railway of 202 miles long, with two summits, one of 1400 feet above tide, the other 918 feet, and with grades of 83 feet per mile, is successfully competing with the steamboat navigation of the world renowned Hudson, a distance of 52 miles less than the railroad! Massachusetts has by a bold stroke appropriated to herself a share in the trade of New York, which was created at an expense of $30,000,000 by the construction of the New York canals! The plan of Boston is, to extend their route direct from Rochester to the Niagara river, crossed below the falls by means of a bridge, and connect with the Western railroad in Upper Canada, which is to be commenced this year, will join the Central road through Michigan, and be continued to Chicago.

The success of the Western road has roused the energies of New York. A renewed activity on the New York and Erie railroad, and the revival of the proposed Albany railroad, are the consequences.—The roads now in construction and contemplation by New York, will be carried on as rival lines, and nearly parallel to the Boston system. Lake Erie will in a few years be completely encircled by railroads, connecting with Boston as well as with New York.

The trade of the State of Michigan will be monopolised by these two cities. Philadelphia, however, has it withni her power to appropriate to herself the greater portion of the lake trade, as far as the trade is now furnished by the States of Ohio, Indiana and Illinois. The shipping business of the lakes is made up by the trade of the surrounding States.—The lakes themselves offer no element of trade except a few fish. If, therefore, by the construction of the proposed Great Central Road from St. Louis to Philadelphia, the western merchant is offered a direct and well constructed railroad to the seaport, in place of the dangerous, tedious and uncertain sea route, he will most certainly avail himself of the former, for travel as well as transportation. It is not from the lakes, which are closed five months in the year, but from the surrounding country, that we expect to derive the support of our road.

We are apt to mistake effects for causes. By removing or changing the latter, we are certain to control the former. This principle applied to the lake trade, we discover, that by the construction of the proposed road, which will intersect nearly all the present avenues to the lakes at right angles, we shall at once strike at the main roots of this trade. The New York canal has been, and is yet, the great feeder and outlet of the lake trade. But this canal, like all others, is destined to be superseded by railroads, and in proportion as this takes place, the shipping of the lakes will be affected. It is not maintained here, that the New York canal will be abandoned as unfit for transportation—being one of the best situated, and when the enlargement is completed, one of the best constructed improvements of the kind, it will be able to maintain itself in competition with railroads. But it will cease to be the exclusive thoroughfare to the west, the greater bulk of transportation will go by railroad. It may be added, that the fast increasing population of the lake country and of the west will eventually furnish ample trade for the support of all the principal lines in operation and proposed.

Public opinion has strongly set in favor of a continuous railroad from Philadelphia to Cleveland via Pittsburg. As far as Philadelphia and the lake are concerned, the connection would be less advantageous than a direct road to the town of Erie. But what can be expected from making either Cleveland or Erie points of termination of a great road, such as is now in contemplation? At the town of Erie we would encounter the opposition of the New York and Erie railroad, (now constructing.) A few miles more or less of railway transportation will not influence trade, as will appear from subsequent remarks. The superior capital and commercial advantages of New York will draw the trade to it; the great tonnage which will pass over the New York and Erie railroad, will allow that company to transport at a low rate, and the consequence will be, hat the lake trade will seek the New York market, although by a longer route, in preference to the Philadelphia market.

The result, however, will be very different, when we tap the lake trade at its sources, save several hundred miles of distance, and avoid the risk, danger and delay of lake navigation altogether.

The distance from Philadelphia to Cleveland, by way of Pittsburg and Central route, is....467 miles.
From Philadelphia to town of Erie by the Sunbury and Erie route.....435 "
From New York to Dunkirk, by N. York and Erie railroad.....470 "
From New York to Buffalo, by N. York canal.....508 "
From Boston to Buffalo, by railroad.....521 "

These distances show that Philadelphia is as well, and better, situated than New York and Boston for participation in the lake trade. With respect to rise and fall, the grades are also in favor of Philadelphia. But the differences between these routes is too trifling, as to exercise a decided influence upon the cost of transportation. The latter will more depend upon other contingencies.

The trade of Ohio, Indiana, Illinois and Missouri, can be secured to Pittsburg and Philadelphia, with positive certainty, by the construction of the great Central railroad. Neither New York nor Boston can undertake to compete with this route, which will intersect all the numerous improvements and lines of transportation, established in the western States, for connecting the Ohio river with the lakes. The business carried over these lines, will be intercepted by the proposed route.

Pursuing a direct course west of Pittsburg, near Steubenville, we will intersect the great Ohio canal, near Salem, and proceeding nearly parallel to it for some distance, we reach Columbus. It will be no exaggeration when I state, that by the extension of our road from Pittsburg to Columbus, we will have

secured *one-third* of the whole lake trade. The Western Reserve will be pledged to our route; the whole trade of the valley of Michigan, and of the Scioto, and as will be seen directly, of the balance of the State, will be secured. At Columbus we connect with the road to Cleveland, which is contemplated to be constructed, also with the road to Sandusky. Proceeding west, we avail ourselves of the road to Springfield, and connect with the road to Cincinnati. The great aim of the State of Ohio, and of Cincinnati particularly, has been to form communications with Lake Erie, and thereby with the city of New York. If Philadelphia will pursue a judicious policy, she can take the place of New York, in relation to the commerce of nearly the whole of the State of Ohio. Pennsylvania will be readily met by the liberal policy of that State, in granting connections, which will render tributary to our road, nearly the whole of that vast system of improvements which traverse this State in a north and south direction.

Will it not be better policy, in place of making a road from Pittsburg to Cleveland, a point over 100 miles distant from the great centre of trade, to reach that centre directly by a railway, traversing all the active lines of transportation at right angles, and at such a distance from the New York or Lake Erie line, that the latter can never interfere with the free operations of this great route? The future success of the Central road will require one or two branches to Lake Erie, but their construction should not now interfere with the speedy consummation of the main object. Pittsburg is already connected with the lake by two water communications, to which another will shortly be added. The whole tract of the Western reserve might now reach Philadelphia by way of Pittsburg, if such was not prohibited by the high rate of tolls on the Pennsylvania canal.

Let us remember, that Cleveland itself has no resources of trade. It is only one of the depots of the State of Ohio, having derived its importance from the Ohio canal. By intersecting this canal half way between the lake and the Ohio river, we shall secure the greater part of the business now permitted to reach Cleveland. When we consider the charges, delays, damages and risks, incident upon the transportation of produce from the interior of Ohio to the city of New York, by way of Cleveland, Buffalo, and Albany, on which routes, three transhipments and agencies are to be incurred; and we compare this line to the great central route to Philadelphia, without any transhipment, delay, or risk, and consuming only one-fifth of the time; there is little sagacity required to foretell the result.

For the transportation of bacon and flour to the eastern market, and for transportation, the uninterrupted and rapid conveyance by the great Central route, will be preferred to any other, even at a higher rate of charges. With the aid of the electric telegraph, the western merchant can be kept constantly informed of the state of the market; he will, therefore, never risk, but will be ready at all times, to fill an order with certainty within four days notice.—Speculations and injurious fluctuations will then cease, trade will be established upon a more solid basis. It is true that the business of commission, the heaviest drag upon commerce, will be seriously affected by such a change, but just in proportion will the community at large be benefitted.

To prove conclusively that the trade of Ohio, which now goes to New York, may be directed to Philadelphia, the following simple statement of facts will suffice:

Distance from Philadelphia to Pittsburg, by the most approved route, when finally located, will not exceed .....330 miles.
Distance from Pittsburg to Ohio canal by Steubenville .....105 "
Total, from Phila. to Ohio canal.....435 "

A charge of 2½ cents per mile per ton of heavy freight, is a high remuneration on a good substantial railroad, with moderate gradients, and doing a heavy passenger business, beside carrying freight. Coal is transported on the Reading railroad, at less than 1 cent per ton per mile. The charges on the Western road are from 1½ to 3 cents per ton per mile; flour on that road is carried 202 miles for 30 cents per barrel. The great Central road will do a heavier business than any other road in the country, except the Reading; it will, therefore, be well enabled to carry western produce at the rate of 2½ cents per ton per mile, or $10 87 for the whole distance from the Ohio canal to Philadelphia. Lighter and more valuable merchandize will be carried at the rate of from 3 to 4 cents per ton on $13 05 to $17 40 for the whole distance—equivalent to 65 cents and 87 cents per 100 lbs. Allowing 10 barrels of flour per ton, this article will be conveyed through at the rate of $1 08 per barrel.

Now the present *average* charge for the transportation of 1 barrel of flour by the N. Y. canal from Buffalo to Albany is.....60 cents.
Add to this, charge from Cleveland or Sandusky to Buffalo .....20 "
From Albany to New York.....10 "
Total charge by New York route.....90 "

To these charges we have to add the expense of transportation through the State of Ohio, on the one hand to the lake, on the other to the railroad, and we shall find that the great Central route will be cheaper than the New York route.

It is quite evident that the New York lines can never compete with the great Central, for the trade between it and the Ohio river, nor can they aspire to any considerable portion north of the railroad.—To this may be objected, that the charges on the N. York canal will be reduced when the enlargement is finished. This is true, but by the time this is accomplished, we shall be prepared to reduce also the charges on our road. For it is well known, that the capacity of a railroad, for cheap transportation, depends in a *great* measure, upon the extent of its business, and the great Central road is destined to do the heaviest business in the country.

Neither the New York and Erie railroad, when completed, nor the Boston line, will be able to compete with the great Central; *provided*, the business on the latter can be sufficiently extended, to admit of lower fares. The distance from the Ohio canal to Philadelphia was stated to be .....435 miles.
The distance from Cleveland to N. York by the N. Y. and Erie railroad is.....640 "
From Cleveland to Boston by railroad...740 "

Cleveland is a point nearly opposite to the point of intersection of the Ohio canal by the great Central road; therefore a correct point to start comparisons. The grade on the latter route will not exceed 45 feet; those on the New York and Erie, reach 60 feet per mile, while the Boston route has several grades as high as 83 feet per mile. The conclusion appears to be legitimate, that neither of the northern railroads can come in competion with the great Central, for travel or freight. Owing to its more southern location, this road will be less impeded by snow than its northern rivals—which is also an important advantage.

From Springfield, in Ohio, to Indianopolis, in Indiana, the line of the national road nearly indicates the route to be pursued. Before the State line is reached, the Miami canal will be intersected, and its trade secured. The Whitewater canal in Indiana, which passes through a fertile country, and terminates at Cincinnati, is the next improvement which will be crossed. Indianapolis itself forms a centre from which various lines of improvements diverge, some finished, others in course of construction, others abandoned for the present. The Madison railroad, which leads from this point to Madison, on the Ohio river, is in operation. The capital of Indiana is undoubtedly the best point for attraction as well as distribution.

From Indianapolis to St. Louis, we will have to follow the general route laid out for the national road, by way of Terre Haute and Vandalia. It is gratifying to learn, that the citizens of St. Louis have lately agitated the project of a railroad to Indianapolis. I would propose to open a correspondence, for concerting measures for a simultaneous move in the east as well as in the west, towards the same object. The west feels the want of a good railroad communication with the east. This is the reason why I have headed this article "*The Great Central Railroad from Philadelphia to St. Louis.*"—I wish to draw the attention of our citizens to the necessity of taking preliminary steps for an early construction of the whole line to St. Louis. The States of Ohio, Indiana, Illinois, and Missouri, are all interested in this work, the completion of which is not above their abilities, when ably supported by the east. The citizens of St. Louis are aiming for Columbus, to form a connection with New York.—This is, therefore, the point where the east will have to meet the west.

The idea has been suggested to continue the road from Pittsburg to Beaver, thence diverging to Cleveland and Columbus. But this would be taxing all the immense traffic from and to the Western States with the expense, which the additional distance caused by following the meanderings of the river, would impose. The additional annual expense, to which the business of this road would be subjected, would, in a few years, equal the capital required for the erection of a railroad bridge at Steubenville. A direct road from Pittsburg to Steubenville appears to be feasible by way of Chartiers and Hormaun's creek, with grades not exceeding 45 feet per mile.

We have seen that we possess superior advantages over the northern routes in competing for the western trade. But we have also to contend with two formidable rivals in the south, the Baltimore and Ohio railroad, and the great Virginia route, projected from Richmond to Cuyandot, in a direct course to Cincinnati.

I propose, first, to examine, to some extent, the claims of the Baltimore and Ohio railroad. This road is one of the earliest lines commenced in the United States. The stockholders of that company may be denominated the pioneers of railroading. In their attempt to complete a great railroad, at a period when this species of improvements was yet in its infancy, that company has passed through a great ordeal, by sacrificing vast sums of money by way of experiments. Their location from Baltimore to Harper's Ferry, was originally calculated for horse power, and the superstructure laid down with this view. The rapid improvements in the construction of the locomotive engine soon changed the whole aspect of railroads; that location and construction which was good enough for horse power, could no longer serve the improved locomotive. A

partial reconstruction of the road from Baltimore to Harper's Ferry, has become a necessary consequence.

The enterprizing citizens of Baltimore are entitled to great credit for their indomitable energy and perseverance, which they have evinced in the construction of the great improvement in question.—Considering their resources, they have done more than any other community in this country. They have, in fact, attempted too much. The emporium of the little state of Maryland originated the bold idea of extending a magnificent line of railroads through the territory of her neighbors, to connect the Ohio with the Atlantic!

Pennsylvania, as well as Virginia, have at last become aware of the importance of this great project, and they are now viewing it with the eyes of rivals. It was by the generous invitations of the adjoining States, that the city of Baltimore was prompted to make exertions, beyond its strength, in pushing on the enterprize. One branch of the line has been extended to Winchester, the main stem to Cumberland. These, together with the Washington and York branches, in which the company is interested, are doing a fair business and paying well. The stockholders appear to be satisfied with the result of their efforts; they feel that they have exerted themselves to the extent of their ability, and wish to pause; they are unwilling, as well as unable, to proceed in the prosecution of their enterprize for the present. Unfortunately for this company, two great rival routes have been projected with the avowed object of securing the western trade. The ambition and future success of these rivals, will influence the fate of the Baltimore and Ohio; it may delay, and perhaps totally prostrate, their design of completing their line to the Ohio river below Wheeling.

In advocating, as a citizen of Pennsylvania, the interests of the great Central railroad, I am desirous of abstaining from all unjust comment on the Baltimore and Ohio railroad or other rival lines. But as an engineer, who has made the great leading railroad routes, projected through the different States, a professional study, and who is called on by his fellow-citizens to state his views upon these important questions, I feel I should not be doing my duty, by abstaining from all comparisons.

The original design of the Baltimore and Ohio railroad company, was to extend their line to Pittsburgh and to Wheeling. Should they succeed in forming a connection with Pittsburg, which is now very uncertain, their line would come in direct competition with the great Central. According to their reports and surveys, the distance from Baltimore to Pittsburg, by the most approved route, will be 340 miles. This route is located along Wills' creek, on the eastern slope of the Allegheny mountain, which is ascended with a grade of 66 feet per mile for 22 miles long, when the *Sand Patch* summit is attained. The western descent commences at the same rate of 66 feet per mile, and continues for five miles long; here the headwaters of Cartleman's river are reached, thence the line continues descending at an easy rate along the Youghiogheny and Monongahela to Pittsburg.

The surveyed distance from Baltimore to Pittsburg, by the above route, is...	340 miles.
The elevation of the Allegheny summit above tide, is	2290 feet.
The distance from Baltimore to Wheeling, by the most preferred route, is....	375 miles.
The distance from Philadelphia to Pittsburg by the Central route, when finally located, will not exceed	330 "
The elevation of the Allegheny summit, above tide on that route, is	2184 feet.

To save distance on the eastern ascent of the Allegheny mountain, the engineers of the Baltimore and Ohio railroad company have surveyed another route, ascending along Jennings' run, at the rate of 90 feet per mile, and descending with a similar grade, by Flaugherties' run. Since the machinery and working of inclined planes has been so much improved, that all danger and delay can be avoided, it appears, indeed, questionable, whether inclined planes would not be preferable to 90 feet grades on the mountain route of the Baltimore and Ohio.

Few of those persons who have not had opportunities of comparing the maps of the Baltimore and Ohio with those of the Central route, will be found willing to credit the above statement of the relative distances of the two routes. They judge from the geographical position of Baltimore and Philadelphia towards Pittsburg, that the distance by railroad from the latter point to Baltimore, must necessarily be much less than to Philadelphia, without taking into consideration the increase of distance, which may be caused by the greater and smaller windings of the road. The location of the Central road is remarkably straight and direct, while on the other hand the route of the Baltimore and Ohio is exceedingly circuitous in its general courses, as well as in its detail curvature. This was rendered unavoidable by the serpentine character of the river courses which had to be pursued, and by the great obstacles which the steep ascent of the eastern slope of the Allegheny mountain presents to a location.

The passage of the Allegheny Mountains on the Pennsylvania route, on the other hand, is remarkably favorable as to grades and general courses. This can only be explained by the fact, that the mountains slope along the *Little Juniata*, where the line is located, forms a gradual descent, and gives us all the distance required, without deviating much from the general course. From *Logan's Narrows*, which may properly be considered the foot of the eastern slope of the Allegheny mountains on the central route, and which point is elevated 891 feet above tide, we have a distance of 32 miles to the Summit, which is 2184 feet above tide. This elevation, therefore, might be attained at an average rate of 40 feet per mile. The location varies from 26½ feet to 45 feet per mile, with some intervening levels. There are reasons to believe, that by a more minute and thorough examination, these grades can be improved.

The curvature on the central road will be much less than on the Baltimore and Ohio. The total rise and fall of the former, however, will exceed that of the latter. I have not been able to ascertain the precise amount of curvature on the Baltimore and Ohio railroad. The want of this item, therefore, will prevent me from presenting comparative tables of the equated distances of the two routes. The equated distances of the central route are to be found in Mr. Schlatter's report. Truth, however, prompts me to state, that in consequence of the greater amount of rise and fall on the central road, the total equated distance from Pittsburg to the seaboard, appears to be in favor of the Baltimore route. From this it would follow, that the road will possess an advantage over the central road, in the transportation of freight—but of freight only—provided all the other relations are the same.

The capacities of the two waters, however, approximate so closely, that the success of their rivalry, will entirely depend upon other contingencies, which are independent of grades, curves and distances.

(To be Continued.)

Incrustation of Steam Boilers.

Nothing perhaps has contributed so much to the occurrence of fatal accidents as explosions arising from the incrustation of boilers. Incrustation may cause explosions in various ways: by forming a layer of non-conducting matter between the metal and the fluid to be heated, and thus allowing the temperature of the former to rise to a high point, even to redness. The metal oxidizes rapidly at this temperature, and the boiler is thereby weakened and rendered incapable of sustaining the necessary pressure. But a more fruitful cause of accidents is the sudden removal of portions of incrustation, when the metal expands on the attainment of the high temperature; the water is thereby brought in contact with the heated metal, and evaporation takes place so suddenly as to resemble the evolution of gasses from the firing of gunpowder. Indeed, the results in both cases are identical. About two years back a Dr. Ritterbandt turned his attention to this subject, and succeeded in discovering a process which does not injure, by its chemical or mechanical action, the metal of the boiler, or other parts of the engine exposed to its influence. The Society of Arts rewarded the ingenious inventor with its gold Isis medal for his discovery. The principle upon which Dr. Ritterbandt's invention is based is the chemical action which the muriate of ammonia exerts upon the carbonate of lime, the incrusting material. Dr. Ritterbandt discovered that by introducing muriate of ammonia into a boiler containing water holding lime in solution, the carbonate of lime, instead of depositing when the carbonic acid by which it was held in solution was expelled at a high temperature, became converted into muriate of lime, a substance eminently soluble, while the carbonate of ammonia, likewise formed by the double decomposition, passed off with the steam, so that the boiler could not foul. The process is equally applicable to fresh and salt water. The inventor has proved, that when sea water is boiled, the incrustation produced is not formed of salt, but of calcareous matter, the salt not depositing until the water has attained a density far beyond that at which the boilers of marine engines are worked. The object of the frequent blowing off which obtains in practice is to prevent the accumulations of the deposited calcerous matter. By preventing the formation of carbonate, by the addition of muriate of ammonia, the necessity of blowing is, to great extent, dispensed with, for while with the best contrived apparatus, it is found impossible to continue working at a density above 20 degrees marine hydrometer, with the plan of Dr. Ritterbandt a density of 60 degrees may be safely employed.—Three-fourths of the quantity of water usually blown out is thus economized, and consequently, that portion of the loss of fuel saved. The soundness of Dr. Ritterbandt's principle has stood the test of time and experience.—Twelve months have elapsed since his discovery was brought under the notice of the public, and in that time its operation has been tried in every variety of way with eminent success—in large and small steamboats, in

stationary and locomotive engines, working with water from all localities, and in every instance has it been found perfectly effective, not merely in keeping the boilers where it has been applied clear of deposit, but in disintegrating that which had formed previously to its application. And we should be wanting in justice to the ingenious inventor, were we not to avow that the invention has been tried for nearly 22 months upon the boilers of the engines printing the "Times," working on an average 17 hours per diem throughout the year. Not only have the boilers been kept perfectly free from deposit, but an incrustation which was formed previously to the application of the invention has been completely removed. We can further state, that neither the boilers nor any part of the machinery has been in any. even in the slightest degree, acted upon or injured by the action of the remedy in question.—*London Times.*

London and York Contract for Rails.—On Wednesday the two firms of Bailey, Brothers, and the Colebrook Dale Company, took the contracts of the London and York for 35,000 tons of rails, the larger portion by far being taken by Bailey, Brothers. The price was near or about £10 delivered; the rails, we believe, are to be only 72 lb. rails. Sir John Guest, the house of Thompson & Co., and a few others, tendered, but Mr. Crawsby declined, not liking, it is said, the the conditions of the specification. One of the conditions, it is reported, is, that the engineer, if within 12 months after they are laid down, disapprove of the rails, he may order the contractor to take them back without any appeal from him.—*Herapath.*

RAILWAY IRON.—THE BEST QUALITY of English Heavy H Rails—60 lbs. to the yard—now in store, landing from the vessel, and on ship board to arrive, for sale on most favorable terms by

DAVIS, BROOKS & CO.,
Jan. 2. [1tf] 68 Broad St., New York.

LOCOMOTIVE AND CAR AXLES. The Subscribers are now prepared to receive orders for the well known and approved *Reading Locomotive and Car Axles*—drawn to any required pattern from *Bloom Iron only.* Address

SAM'L KIMBER & CO.,
Willow Street Wharf,
4tf Philadelphia, Pa.

NOTICE TO RAILROAD CONTRACTORS. Proposals will be received at the Office of the Boston and Maine Railroad, No. 60 State street, Boston, until Monday, the 8th day of February next, for the Graduation and Masonry on the line of Road in Andover, between the Merrimack River and a point of intersection with the old Road.

For examination of profile and work, application may be made at the office of the Engineers, at the Depot in South Andover.

THOMAS WEST, President
Boston and Maine Railroad.
January 22, 1847. 3t4

NOTICE TO RAILROAD CONTRACTORS.

Proposals will be received by the Subscriber, at the office of the Michigan Central Railroad Company, at Detroit, until the 16th day of February next, for Grading the first thirteen miles of the Extension of the Michigan Central Railroad, from Kalamazoo, westward; said thirteen miles contains about four hundred thousand cubic yards of earth work. Plans and Specifications will be ready for examination at the office of the subscriber after February 1st.

J. W. BROOKS, Supt. & Eng.
Detroit, January 5, 1847. 5t3

A. & G. RALSTON & CO., NO. 4 South Front St., Philadelphia, Pa.

Have now on hand, for sale, Railroad Iron, viz:
180 tons 2½ x ½ inch Flat Punched Rails, 20 ft. long.
25 " 2½ x ½ " Flange Iron Rails.
75 " 1 x ½ " Flat Punched Bars for Drafts in Mines. A full assortment of Railroad Spikes, Boat and Ship Spikes. They are prepared to execute orders for every description of Railroad Iron and Fixtures. 1tf

RAILROAD IRON.—THE NEW JERSEY Iron Company, Boonton, N. J., are now preparing to make Railroad Bars, and are ready to take orders or make contracts for Rails, deliverable after the first of December next. Apply to

FULLER & BROWN, Agent,
No. 139 Greenwich, corner of Cedar street.
September 18, 1846. 10t39

NICOLL'S PATENT SAFETY SWITCH for Railroad Turnouts. This invention, for some time in successful operation on one of the principal railroads in the country, effectually prevents engines and their trains from running off the track at a switch, left wrong by accident or design.

It acts independently of the main track rails, being laid down, or removed, without cutting or displacing them.

It is never touched by passing trains, except when in use, preventing their running off the track. It is simple in its construction and operation, requiring only two Castings and two Rails; the latter, even if much worn or used, not objectionable.

Working Models of the Safety Switch may be seen at Messrs. Davenport and Bridges, Cambridgeport, Mass., and at the office of the Railroad Journal, New York.

Plans, Specifications, and all information obtained on application to the Subscriber, Inventor, and Patentee

G. A. NICOLLS,
ja45 *Reading, Pa.*

RAILROAD IRON.—THE SUBSCRIBER'S New Rail Iron Mill at Phœnixville, Pa., is expected to be ready to go into operation by the 1st of September, and will be capable of turning out 30 to 40 tons or finished Rails per day. They are now prepared to receive orders to that extent, deliverable after the 1st of Octobet next, for heavy rails of any pattern now in use, equal in quality and finish to best imported.

PIG IRON.—They are also receiving weekly 150 to 200 tons of No. 1 Phœnix Foundry Iron, well adapted for light castings.

REEVES, BUCK & CO,
45 North Water St., Philadelphia,
or by their Agent, ROBT. NICHOLS,
28tf 79 Water St., New York

THE SUBSCRIBERS, AGENTS FOR the sale of

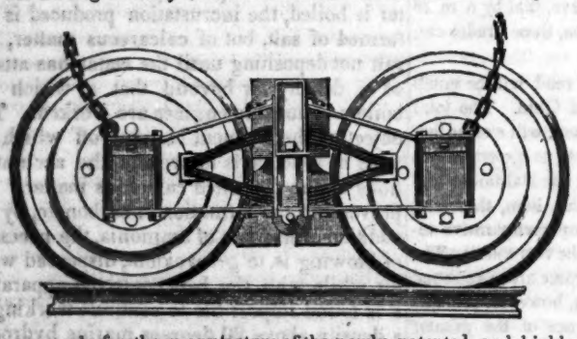
Codorus,
Glendon,
Spring Mill and
Valley,
} Pig Iron.

Have now a supply, and respectfully solicit the patronage of persons engaged in the making of Machinery, for which purpose the above makes of Pig Iron are particularly adapted.

They are also sole Agents for Watson's celebrated Fire Bricks and prepared Kaolin or Fire Clay orders for which are promptly supplied.

SAM'L. KIMBER, & CO.,
59 North Wharves,
Jan. 14, 1846. [1y4] *Philadelphia, Pa.*

RAY'S EQALIZING RAILWAY TRUCK.—THE SUBSCRIber having recently formed a business connection in the City of New



York, expressly for the manufacture of the newly patented and highly approved Railroad Truck of Mr. Fowler M. Ray, is ready to receive orders for building the same, from Railroad Companies and Car Builders in the United States, and elsewhere.

The above Truck has now been in use from one to two years on several roads a sufficient length of time to test its durability, and other good qualities, and to satisfy those who have used it, as may be seen by reference to the certificates which follow this notice.

There have been several improvements lately introduced upon the Truck, such as additional springs in the bolster of passenger cars, making them delightful riding cars—adapting it to tenders, trucks forward of the locomotive, and freight cars, which, with its original good qualities, make it in all respects the most desirable truck now offered to the public.

Orders for the above, will, for the present, be executed at the New York Screw Mill, corner 33d street and 3d avenue, (late P. Cooper's rolling mills) and at the Steam Engine Shop of T. F. Secor & Co., foot of 9th street, East river, (of which firm the subscriber was late a partner) under the immediat supervision of Mr. Ray himself.

Several sets of trucks containing the latest improvements have recently been turned out for the New York and Erie railroad, and the New Jersey Transportation company, which may be seen upon said roads.

The patronage of Railroad Companies and Car Builders is respectfully solicited.

New York, May 4, 1846. W. H. CALKINS, and Others.

To all whom it may concern:—This is to certify that the New Haven, Hartford and Springfield railroad co., have had in use six sets of F. M. Ray's patent trucks for the last 20 months, during which time it appears to me, they have proved to be the bes and most economical truck now in use.

[Signed,] WILLIAM ROE, Sup't of Power.

I certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Philadelphia and Reading railroad for some time past, under a passenger car.

For simplicity of construction, economy in cost, lightness of material, and extreme ease of motion, I consider it the best truck we have ever used. Its peculiar make also renders it less liable to be thrown off the track, when passing over any obstruction. We intend using it extensively under the passenger and freight cars of the above road.

Reading, Pa., October 6, 1845. [Signed,] G. A. NICOLL,
Sup,t Transportation, etc., Philadelphia and Reading Railroad.

To all whom it may concern:—This is to certify that the N. Jersey Railroad and Transportation company have used Fowler M. Ray's Truck for the last seven months, during which time it has operated to our entire satisfaction. I have no hesitation in saying that it is the simplest and most economical truck now in use. [Signed,] T. L. SMITH,

Jersey City, November 4, 1845. N. Jersey Railroad and Transp. Co.

This is to certify that F. M. Ray's Patent Equalizing Railroad Truck has been in use on the Long Island railroad for the last year, under a freight car.

For simplicity of construction, economy in cost, lightness of material and ease of motion, I consider it equal to any truck we have in use.

Long Island Railroad Depot, Jamaica November 12, 1845. } [Signed,] JOHN LEACH,
1y19 Sup't Motive Power.

RICH & CO'S IMPROVED PATENT SALAMANDER SAFES.

Warranted free from dampness, as well as fire and thief proof.

Particular attention is invited to the following certificates, which speak for themselves:

TEST No. 10.

Certificate from Mr. Silas C. Field, of Vicksburgh, Mississippi.

On the morning of the 14th ult., the store owned and occupied by me in this city, was, with its contents, entirely consumed by fire. My stock of goods consisted of oil, rosin, lard, pork, sugar, molasses, liquors, and other articles of a combustible nature, in the midst of which was one of Rich's Improved Patent Salamander Safes, which I purchased last October of Mr. Isaac Bridge, New Orleans, and which contained my books and papers. This safe was red hot, and did not cool sufficiently to be opened until 16 hours after it was taken from the ruins. At the expiration of that time it was unlocked, when its contents proved to be entirely uninjured, and not even discolored. I deem this test sufficient to show that the high reputation enjoyed by Rich's Safes is well merited. S. C. FIELD.

TEST No. 11.—*Certificate.*

By the fire which occurred in this village on the 27th July last, our Law Office, together with many other buildings, was destroyed—we had in our office one of Rich's *Improved* Patent Salamander Safes, which, though heated red hot, preserved, without being the least damaged, many papers valuable to our clients—the envelopes of a few papers being *slightly* scorched. Some twenty-four hours after the fire, the Safe was removed, and so hot was it, that several hours were required for it to cool off. Our office was in the second story of a large brick building, all the wood used in construction of said house being *pitch pine.* While the Safe was red hot, one of the walls tumbled in, and so injured the lock that it was necessary to break the door open. From this test, we feel no hesitancy in recommending "Rich's Patent Salamander Safe" as *entirely fire proof.*

GOREE & KING.

Marion, Ala., Sept. 15th, 1846.

Still other Tests in the Great Fire of July 19, 1845.

The undersigned purchased of A. S. Martin, No. 138½ Water street, one of Rich's Improved Patent Salamander Safes, which was in our store, No. 54 Exchange place. The store was entirely consumed in the great conflagration on the morning of the 19th inst. The safe was taken from the ruins 52 hours after, and on opening it, the books and papers were found entirely uninjured by fire, and only slightly wet—the leather on some of the books was parched by the extreme heat. RICHARDS & CRONKHITE.

Benton, Miss., December 27, 1845.

One of Rich's Improved Salamander Safes, which I purchased on the 2d of June last of A. S. Marvin, 138½ Water street, agent for the manufacturer, was exposed to the most intense heat during the late dreadful conflagration. The store which I occupied, No. 46 Broad street, was entirely consumed; the safe fell from the 2d story, about 15 feet, into the cellar, and remained there 14 hours, and when found, I am told, and from its appearance afterwards, should judge that it had been heated to a red heat. On opening it, the books and papers were found not to have been touched by fire. I deem this ordeal sufficient to confirm fully the reputation that Rich's safe has already obtained for preserving its contents against all hazards. (Signed,)

WM. BLOODGOOD.

New York, 21st July, 1845.

Reference made to upwards of nine hundred and fifty merchants, cashiers, brokers, and officers of courts and counties, who have Rich's Safe's in use.

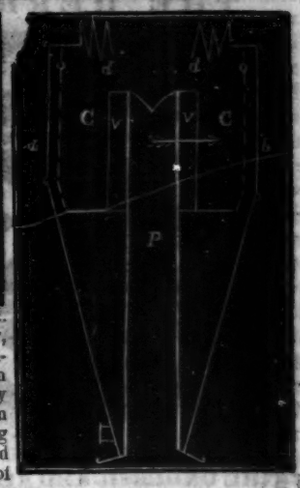
The above safes are finished in the neatest manner, and can be made to order at short notice, of any size and pattern, and fitted to contain plate, jewelry, etc. Prices from $50 to $500 each. For sale by

A. S. MARVIN, General Agent,
138½ Water st., N. Y.

Also by Isaac Bridge 76 Magazine street, New Orleans.

Also by Lewis M Hatch, 120 Meeting street Charleston, S. C. 16 tf

FRENCH AND BAIRD'S PATENT SPARK ARRESTER.



TO THOSE INTERESTED IN Railroads, Railroad Directors and Managers are respectfully invited to examine an improved SPARK ARRESTER, recently patented by the undersigned.

Our improved Spark Arresters have been extensively used during the last year on both passenger and freight engines, and have been brought to such a state of perfection that no annoyance from sparks or dust from the chimney of engines on which they are used is experienced.

These Arresters are constructed on an entirely different principle from any heretofore offered to the public. The form is such that a rotary motion is imparted to the heated air, smoke and sparks passing through the chimney, and by the centrifugal force thus acquired by the sparks and dust they are separated from the smoke and steam, and thrown into an outer chamber of the chimney through openings near its top, from whence they fall by their own gravity to the bottom of this chamber; the smoke and steam passing off at the top of the chimney, through a capacious and unobstructed passage, thus arresting the sparks without impairing the power of the engine by diminishing the draught or activity of the fire in the furnace.

These chimneys and arresters are simple, durable and neat in appearance. They are now in use on the following roads, to the managers and other officers of which we are at liberty to refer those who may desire to purchase or obtain further information in regard to their merits:

R. L. Stevens, President Camden and Amboy Railroad Company; Richard Peters, Superintendant Georgia Railroad, Augusta, Ga.; G. A. Nicolls, Superintendant Philadelphia, Reading and Pottsville Railroad, Reading, Pa.; W. E. Morris, President Philadelphia, Germantown and Norristown Railroad Company, Philadelphia; E. B. Dudley, President W. and R. Railroad Company, Wilmington, N. C.; Col. James Gadsden, President S. C. and C. Railroad Company, Charleston, S. C.; W. C. Walker, Agent Vicksburgh and Jackson Railroad, Vicksburgh, Miss.; R. S. Van Rensselaer, Engineer and Sup't Hartford and New Haven Railroad; W. R. M'Kee, Sup't Lexington and Ohio Railroad, Lexington, Ky.; T. L. Smith, Sup't New Jersey Railroad Trans. Co.; J. Elliott, Sup't Motive Power Philadelphia and Wilmington Railroad, Wilmington, Del.; J. O. Sterns, Sup't Elizabethtown and Somerville Railroad; R. R. Cuyler, President Central Railroad Company, Savannah, Ga.; J. D. Gray, Sup't Macon Railroad, Macon, Ga.; J. H. Cleveland, Sup't Southern Railroad, Monroe, Mich.; M. F. Chittenden, Sup't M. P. Central Railroad, Detroit, Mich; G. B. Fisk, President Long Island Railroad, Brooklyn.

Orders for these Chimneys and Arresters, addressed to the subscribers, care Messrs. Baldwin & Whitney, of this city or to Hinckly & Drury, Boston, will be promptly executed. FRENCH & BAIRD.

N. B.—The subscribers will dispose of single rights, or rights for one or more States, on reasonable terms.

Philadelphia, Pa., April 6, 1844.

*** The letters in the figures refer to the article given in the *Journal* of June, 1844. ja45

PATENT HAMMERED RAILROAD, SHIP and Boat Spikes. The Albany Iron and Nail Works have always on hand, of their own manufacture, a large assortment of Railroad, Ship and Boat Spikes, from 2 to 12 inches in length, and of any form of head. From the excellence of the material always used in their manufacture, and their very general use for railroads and other purposes in this country, the manufacturers have no hesitation in warranting them fully equal to the best spikes in market, both as to quality and appearance. All orders addressed to the subscriber at the works, will be promptly executed. JOHN F. WINSLOW, *Agent.*

Albany Iron and Nail Works, Troy, N. Y.

The above spikes may be had at factory prices, of Erastus Corning & Co., Albany; Hart & Merritt, New York; J. H. Whitney, do.; E. J. Etting, Philadelphia; Wm. E. Coffin & Co., Boston. ja45

MACHINE WORKS OF ROGERS, Ketchum & Grosvenor, Patterson, N. J. The undersigned receive orders for the following articles, manufactured by them of the most superior description in every particular. Their works being extensive and the number of hands employed beinglarge, they are enabled to execute both large and small orders with promptness and despatch.

Railroad Work.

Locomotive steam engines and tenders; Driving and other locomotive wheels, axles, springs & flange tires; car wheels of cast iron, from a variety of patterns, and chills; car wheels of cast iron with wrought tires; axles of best American refined iron; springs; boxes and bolts for cars.

Cotton, Wool and Flax Machinery

of all descriptions and of the most improved patterns, style and workmanship.

Mill gearing and Millwright work generally; hydraulic and other presses; press screws; callenders; lathes and tools of all kinds; iron and brass castings of all descriptions.

ROGERS, KETCHUM & GROSVENOR,
a45 Paterson, N. J., or 60 Wall street, N. York.

PATENT RAILROAD, SHIP AND BOAT Spikes. The Troy Iron and Nail Factory keeps constantly for sale a very extensive assortment of Wrought Spikes and Nails, from 3 to 10 inches, manufactured by the subscriber's Patent Machinery, which after five years' successful operation, and now almost universal use in the United States (as well as England, where the subscriber obtained a patent) are found superior to any ever offered in market.

Railroad companies may be supplied with Spikes having countersink heads suitable to holes in iron rails, to any amount and on short notice. Almost all the railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

All orders directed to the Agent, Troy, N. York will be punctually attended to.

HENRY BURDEN, *Agent.*

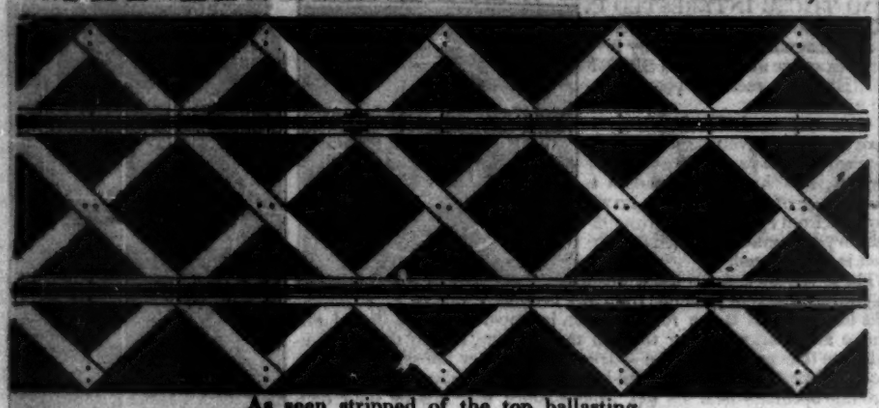
Spikes are kept for sale, at Factory Prices, by I. & J. Townsend, Albany, and the principal Iron merchants in Albany and Troy; J. I. Brower, 229 Water St., New York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

*** Railroad Companies would do well to forward their orders as early as practicable, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand. ja45

DAVENPORT & BRIDGES CONTINUE to Manufacture to Order, at their Works, in Cambridgeport, Mass., Passenger and Freight Cars of every description, and of the most improved pattern. They also furnish Snow Ploughs and Chilled Wheels of any patterr and size. Forged Axles, Springs, Boxes and Bolts for Cars at the lowest prices. All orders punctually executed and forwarded to any part of the country.

Our Works are within fifteen minutes ride from State street, Boston—coaches pass every fifteen minutes.

THE HERRON RAILWAY TRACK,



As seen stripped of the top ballasting

A GOLD MEDAL AWARDED THE INVENTOR BY THE AMERICAN INSTITUTE.

THE UNDERSIGNED RESPECTFULLY invites the attention of Engineers, and Railroad Companies, to some highly important improvements he has recently made in the Herron system of Railway structure. These improvements enable him to effect a very large reduction in the quantity of Timber, and cost of construction, without impairing the strength of the Track, or its powers of resisting frost, while they secure additional features of excellence in the Drainage and facility of making Repairs.

The above cut represents the "Herron Track" as it is laid on the Philadelphia and Reading, and on the Baltimore and Susquehanna Railroads. The intersection of the sills of the trellis are 5 feet from centre to centre, while in the new construction they are only 2½ feet. This renders the string piece unnecessary, thus removing the only objectionable feature found in the Track.

The result of experience has proved that all Tracks constructed with longitudinal timbers, such as mud sills, and more especially, the continuous bearing string pieces retain the rain water that falls between the Rails, which, being thus confined, settles along those timbers, and accumulating in quantity flows rapidly along them on the descending grades, washing out the earth from under the timber, and frequently causing large breaches in the embankments of the road. Whereas all water intercepted by the oblique sills of the trellis, is discharged immediately into the side ditches.

In the 5 foot plan, the Track occupies a Road bed nearly 11 feet wide, while the new construction takes but 8 feet; the timber being more concentrated under the Rails. A block of hard wood, about 2 feet long and 15 inches wide, is introduced into a square of the trellis for the purpose of giving an additional, and effectual support to the joints of the Rails, which rest upon it. Should these joint blocks become chafed and worn by the working, and imbedding of the chairs, as is now the case on all Railroads, they can be readily replaced without any derangement of the timbers less liable to wear.

The following is a general estimate of its cost near the seaboard. In the interior it will be considerably less.

ESTIMATE OF THE PROBABLE COST OF ONE MILE.

4,224 Timbers, 11 ft. long, 3 x 6 inches = 68,696 ft. b.m., at $10 =	$686 96
587 Oak joint blocks 2 ft. x 3 x 15 in. = 4,403 ft. b.m., at $13 =	57 24
13,000 Spikes = 2,250 lbs. at 4½ cts	101 25
Workmanship free of patent charge	600 00
Cost of one mile including the laying of the Rail	$1,445 45

He has made other important improvements, which will be shown in properly proportioned models, that give a much better idea of the great strength of the Track than a drawing will do.

Sales of the Patent right to all the distant States will be made on liberal terms.

JAMES HERRON.
Civil Engineer and Patentee.
No. 277 South Tenth St., Philadelphia. 33tf

ENGLISH PATENT WIRE ROPES—FOR THE USE OF MINES, RAILWAYS, ETC.—for sale or imported to order by the subscriber.

These Ropes are manufactured on an entirely different principle from any other, and are now almost exclusively used in the collieries and on the railways in Great Britain, where they are considered to be greatly superior to hempen ones, or iron chains, as regards safety, durability and economy. The plan upon which they are made effectually secures them from corrosion in the interior, as well as the exterior of the rope, and gives a greater compactness and elasticity than is found in any other manufacture.

Many of these ropes have been in constant operation in the different mines in England, and on the Blackwall and other inclined planes, for three and four years, and are still in good condition.

They have been applied to almost every purpose for which hempen ropes have been used—mines, heavy cranes, standing rigging, window cords, lightning conductors, signal halyards, tiller ropes, etc. Reference is made to the annexed statement for the relative strength and size. Testimonials from the most eminent engineers in England can be shown as to their efficiency, and any additional information required respecting the different descriptions and application will be given by

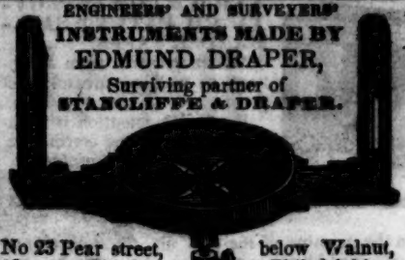
ALFRED L. KEMP,
75 Broad street, New York, sole agent in the United States.

Statement of Trial made at the Woolwich Royal Dock Yard, of the Patent Wire Ropes, as compared with Hempen Ropes and Iron Chains of the same strength.—October, 1841.

WIRE ROPES.				HEMPEN ROPES.			CHAINS.		STRENGTH
Wire gauge number.	Circumference of rope.	Weight per fathom.		Circumference of rope.	Weight per fathom.		Weight per fathom.	Diameter of iron.	Tons.
	INCH.	LBS.	OZ.	INCH.	LBS.	OZ.	LBS.	INCH.	
11	4¼	13	5	10	24	–	50	15-16	20
13	3¼	8	3	8½	16	–	27	11-16	13½
14	3¼	6	11	7½	12	8	17	9-16	10½
15	2¾	5	2	6½	9	4	13½	1-2	7½
16	2¾	4	3	6	8	8	10½	7-16	7

N.B. The working load, with a perpendicular lift, may be taken at 6 cwt. for every lb. weight per fathom, so that a rope weighing 5 lbs. per fathom would safely lift 3360 lbs., and so on in proportion. 1y24

ENGINEERS' AND SURVEYERS'
INSTRUMENTS MADE BY
EDMUND DRAPER,
Surviving partner of
STANCLIFFE & DRAPER.



No 23 Pear street, below Walnut,
1y10 near Third, Philadelphia.

LAP—WELDED
WROUGHT IRON TUBES
FOR
TUBULAR BOILERS,
FROM 1 1-4 TO 6 INCHES DIAMETER,
and
ANY LENGTH, NOT EXCEEDING 17 FEET.

These Tubes are of the same quality and manufacture as those so extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER,
Patentee.
1y25 28 Platt street, New York.

RAILROAD IRON.
MOUNT SAVAGE IRON WORKS

THIS Company are prepared to execute orders for RAILROAD IRON, of any pattern, and equa in point of quality to any other manufactured.

Address J. M. HOWE,
Pres't. Mt. Savage Iron Works,
Dec. 25, 1y* Maryland.

RAILROAD IRON.—THE "MONTOUR Iron Company," Danville, Pa., is prepared to execute orders for the heavy Rail Bars of any pattern now in use, in this country or in Europe, and equal in every respect in point of quality. Apply to MURDOCK, LEAVITT & CO.,
Agents.
1y48 77 Pine St., New York.

RAILWAY IRON.—DAVIS, BROOKS & Co., No. 68 Broad Street, have now in port on Ship-board, 200 Tons of the best English heavy H Rails, 60 lbs. to the lineal yard, which they offer for sale on favorable terms, *also*, about 6 to 700 Tons now on the way, to arrive shortly, of the same description of Rail.
Nov. 16, 1846. 46tf

ENGINEERS and MACHINISTS.

THOMAS PROSSER, 28 Platt St. N. Y. (*See Adv.*)
J. F. WINSLOW, Albany Iron and Nail Works Troy, N. Y. (*See Adv.*)
TROY IRON AND NAIL FACTORY, H. Burden, Agent. (*See Adv.*)
ROGERS, KETCHUM & GROSVENOR, Patterson, N. J. (*See Adv.*)
S. VAIL, Speedwell Iron Works, near Morristown, N. J. (*See Adv.*)
NORRIS, BROTHERS, Philadelphia Pa. (*See adv.*)
FRENCH & BAIRD, Philadelphia. (*See Adv.*)
NEWCASTLE MANUFACTURING COMPANY, Newcastle, Del. (*See Adv.*)
ROSS WINANS, Baltimore, Md.
CYRUS ALGER & Co., South Boston Iron Co.
SETH ADAMS, Engineer, South Boston.
STILLMAN, ALLEN & Co., N. Y.
JAS. P. ALLAIRE, N. Y.
PHŒNIX FOUNDRY, N. Y.
ANDREW MENEELY, West Troy.
JOHN F. STARR, Philadelphia, Pa.
MERRICK & TOWNE, do.
HINCKLEY & DRURY, Boston.
C. C. ALGER, Stockbridge Iron Works Stockbridge, Mass.